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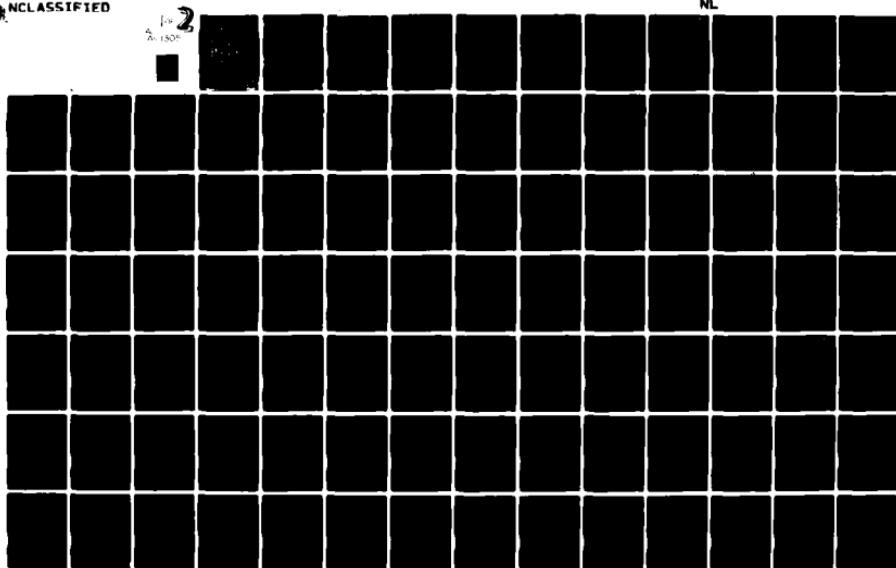
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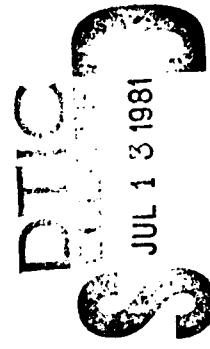
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**DEPARTMENT OF THE
ARMY**

JUSTIFICATION OF ESTIMATES FOR FISCAL YEAR 1982, (U)
Submitted to Congress

JANUARY 1981.



RESEARCH DEVELOPMENT, TEST AND EVALUATION, ARMY

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-- 1 OF 12

-- 1 - AD NUMBER: A097382
-- 2 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF
-- ESTIMATES FOR FISCAL YEAR 1982, SUBMITTED TO CONGRESS JANUARY 1981.
-- PART 5. OTHER PROCUREMENT ARMY.
--11 - REPORT DATE: JAN 1981

-- 2 OF 12

-- 1 - AD NUMBER: A097381
-- 2 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF
-- ESTIMATES FOR FISCAL YEAR 1982, SUBMITTED TO CONGRESS JANUARY 1981.
-- PART 4. AMMUNITION.
--11 - REPORT DATE: JAN 1981

-- 3 OF 12

-- 1 - AD NUMBER: A097380
-- 2 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF
-- ESTIMATES FOR FISCAL YEAR 1982, SUBMITTED TO CONGRESS, JANUARY 1981.
-- PART 3. WEAPONS AND TRACKED COMBAT VEHICLES.
--11 - REPORT DATE: JAN 1981

-- 4 OF 12

-- 1 - AD NUMBER: A097379

-- 2 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF
-- ESTIMATES FOR FISCAL YEAR 1982, SUBMITTED TO CONGRESS JANUARY 1981.
-- PART 2. MISSILES.

--11 - REPORT DATE: JAN 1981

-- 5 OF 12

-- 1 - AD NUMBER: A097378
-- 2 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF
-- ESTIMATES FOR FISCAL YEAR 1982, SUBMITTED TO CONGRESS JANUARY 1981.
-- PART 1. AIRCRAFT.

--11 - REPORT DATE: JAN 1981

-- ESTIMATES FOR FISCAL YEAR 1981, SUBMITTED TO CONGRESS JANUARY 1980.
-- PROCUREMENT PROGRAMS, AIRCRAFT, MISSILES, WEAPONS & TRACKED COMBAT
-- VEHICLES, AMMUNITION AND OTHER PROCUREMENT, ARMY, PART 5.

--11 - REPORT DATE: JAN * 1980

-- 7 OF 12

-- 1 - AD NUMBER: A082808

-- 6 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF

-- ESTIMATES FOR FISCAL YEAR 1981, SUBMITTED TO CONGRESS JANUARY 1980.
-- PROCUREMENT PROGRAMS, AIRCRAFT, MISSILES, WEAPONS & TRACKED COMBAT
-- VEHICLES, AMMUNITION AND OTHER PROCUREMENT, ARMY, PART 4.

--11 - REPORT DATE: JAN * 1980

-- 8 OF 12

-- 1 - AD NUMBER: A082807

-- 6 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF
-- ESTIMATES FOR FISCAL YEAR 1981, SUBMITTED TO CONGRESS JANUARY 1980.
-- PROCUREMENT PROGRAMS, AIRCRAFT, MISSILES, WEAPONS & TRACKED COMBAT
-- VEHICLES, AMMUNITION AND OTHER PROCUREMENT, ARMY, PART 3.

--11 - REPORT DATE: JAN * 1980

-- 9 OF 12

-- 1 - AD NUMBER: A082806

-- 6 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF
-- ESTIMATES FOR FISCAL YEAR 1981, SUBMITTED TO CONGRESS JANUARY 1980.
-- PROCUREMENT PROGRAMS, AIRCRAFT, MISSILES, WEAPONS & TRACKED COMBAT
-- VEHICLES, AMMUNITION AND OTHER PROCUREMENT, ARMY, PART 2.

--11 - REPORT DATE: JAN * 1980

-- 10 OF 12

-- 1 - AD NUMBER: A082805

-- 6 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF
-- ESTIMATES FOR FISCAL YEAR 1981, SUBMITTED TO CONGRESS JANUARY 1980.
-- PROCUREMENT PROGRAMS, AIRCRAFT, MISSILES, WEAPONS & TRACKED COMBAT
-- VEHICLES, AMMUNITION AND OTHER PROCUREMENT, ARMY, PART 1.

--11 - REPORT DATE: JAN * 1980

-- 11 OF 12

-- 1 - AD NUMBER: A082154

-- 6 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF
-- ESTIMATES FOR FISCAL YEAR 1981, SUBMITTED TO CONGRESS JANUARY 1980.

--11 - REPORT DATE: JAN * 1980

-- 12 OF 12

-- 1 - AD NUMBER: A065293

-- 6 - UNCLASSIFIED TITLE: DEPARTMENT OF THE ARMY JUSTIFICATION OF
-- ESTIMATES FOR FISCAL YEAR 1980, SUBMITTED TO CONGRESS JANUARY 1979.
-- PROCUREMENT PROGRAMS, AIRCRAFT, MISSILES, WEAPONS AND TRACKED COMBAT
-- VEHICLES, AMMUNITION AND OTHER PROCUREMENT, ARMY, PART 1 THRU 5.

--11 - REPORT DATE: JAN * 1979

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DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY
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DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY
APPROPRIATION LANGUAGE

Section 1

For expenses necessary for basic and applied scientific research, development, test and evaluation, including maintenance, rehabilitation, lease, and operation of facilities and equipment, as authorized by law; §3,086,737/ \$3,57,200, to remain available for obligation until September 30, 1982/ 1981. (10 U.S.C. 2353, 4503; Department of Defense Appropriation Act, 1980; additional authorizing legislation to be proposed.)

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Research, Development, Test, and Evaluation, Army

Program and Financing (in thousands of dollars)

| Identification code | 21-2040-0-1-061 | Budget Plan (Amounts for RDT&E actions programmed) | | | Obligations | | | |
|--|------------------|--|------------------|------------------|------------------|------------------|-----------|--|
| | | 1980 actual | 1981 est. | 1982 est. | 1980 actual | 1981 est. | 1982 est. | |
| Program by activities: | | | | | | | | |
| Direct: | | | | | | | | |
| 1. Technology base | 462,432 | 505,607 | 616,710 | 460,502 | 500,600 | 609,500 | | |
| 2. Advanced technology development | 140,164 | 166,316 | 207,556 | 134,992 | 167,800 | 204,700 | | |
| 3. Strategic programs | 241,479 | 268,246 | 345,516 | 241,702 | 254,800 | 340,500 | | |
| 4. Tactical programs | 1,470,398 | 1,522,643 | 1,614,332 | 1,78,349 | 1,16,796 | 1,605,754 | | |
| 5. Intelligence and communications | 32,604 | 37,472 | 55,336 | 30,409 | 39,800 | 54,100 | | |
| 6. Defensewide mission support | 499,454 | 581,473 | 737,748 | 498,551 | 574,700 | 727,500 | | |
| Total direct | 2,846,431 | 3,086,757 | 3,877,200 | 2,844,605 | 3,054,496 | 3,542,054 | | |
| Reimbursable program (total) | 609,696 | 562,300 | 552,500 | 560,670 | 600,818 | 554,000 | | |
| 10.0001 Total | 3,455,126 | 3,649,057 | 4,129,700 | 3,405,175 | 3,655,314 | 4,096,054 | | |
| Financing: | | | | | | | | |
| Offsetting collections from: | | | | | | | | |
| 11.0001 Federal funds | -596,798 | -539,450 | -530,700 | -580,827 | -539,450 | -530,700 | | |
| 13.0001 Trust funds | +100 | -225 | -225 | -1,091 | -225 | -225 | | |
| 4.0001 Non-federal sources | -10,797 | -22,625 | -21,575 | -10,575 | -22,625 | -21,575 | | |
| 7.0001 Recovery of prior year obligations, obl plan | ..... | ..... | ..... | 1,573 | ..... | ..... |  |  |
| Unobligated balance available, start of year: | | | | | | | | |
| 21.4.001 For completion of prior year budget plans | ..... | ..... | ..... | -232,216 | -261,691 | -255,434 | | |
| 21.4.002 Available to finance new budget plans | -2,000 | ..... | ..... | -2,000 | ..... | ..... |  |  |
| 21.4.003 Reprogramming from or to prior year budget plan | -5,847 | ..... | ..... | ..... | ..... | ..... |  |  |
| 23.4.001 Unobligated balance transferred to other accounts | 2,000 | ..... | ..... | 2,000 | ..... | ..... |  |  |
| 24.4.001 Unobligated balance available, end of year | 5,847 | ..... | ..... | 261,691 | 255,434 | 289,040 | | |
| 25.0.001 Unobligated balance lapsing | ..... | ..... | ..... | 5,847 | ..... | ..... |  |  |
| 39.0.001 Budget authority | 2,846,431 | 3,086,757 | 3,677,200 | 2,846,431 | 3,086,757 | 3,577,200 | | |
| Budget authority: | | | | | | | | |
| 40.0.001 Appropriation | 2,853,331 | 3,086,757 | 3,577,200 | 2,853,331 | 3,086,757 | 3,577,200 | | |
| 41.0.001 Transferred to other accounts | -10,100 | ..... | ..... | -10,100 | ..... | ..... |  |  |
| 42.0.001 Transferred from other accounts | 1,200 | ..... | ..... | 1,200 | ..... | ..... |  |  |
| 43.0.001 Appropriation (adjusted) | 2,844,431 | 3,086,757 | 3,577,200 | 2,844,431 | 3,086,757 | 3,577,200 | | |
| 50.0.001 Reappropriation | 2,000 | ..... | ..... | 2,000 | ..... | ..... |  |  |
| Relation of obligations to outlays: | | | | | | | | |
| 71.0.001 Obligations incurred, net | ..... | ..... | ..... | 2,812,682 | 3,033,014 | 3,543,554 | | |
| 72.4.001 Unobligated balance, start of year | ..... | ..... | ..... | 1,044,466 | 1,136,992 | 1,338,006 | | |
| 74.4.001 Unobligated balance, end of year | ..... | ..... | ..... | -1,185,992 | -1,536,006 | -1,413,560 | | |
| 77.0.001 Adjustments in expired accounts | ..... | ..... | ..... | 2,552 | ..... | ..... |  |  |
| 78.0.001 Adjustments in unexpired accounts | | | | -1,573 | | | | |
| 90.0.001 Outlays | | | | 2,707,031 | 2,511,000 | 3,468,000 | | |

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| Identification code | Program and Financing (In thousands of dollars) |
|---------------------|---|
| | 21-0000 |

21-2040-0-1-051 Budget plan (amounts for ROTC actions programmed) 1979 Fiscal year program obligations

| Program by activities | 1980 actual | 1981 est. | 1982 est. | 1980 actual | 1981 est. | 1982 est. |
|-----------------------|-------------|-----------|-----------|-------------|-----------|-----------|
| Direct: | | | | | | |
| | | | | | | |

object: 1. Technology base
2. Advanced technology

target: 1981 est. 1982 est.

| | |
|--|---------------|
| 6. Defense and communications | Total: |
| 6.1. Defense mission support | 76,960 |
| 6.2. Intelligence, surveillance and communications | 1,160 |
| 6.3. Other | 5,224 |

D 0001 Reimbursable program (total) 23,516
- lots, direct 2,225

Total: \$131,286
Financing: \$80,454

Offsetting collections from:
Adjustment to pay federal funds
..... 211,740

| | | |
|---|------|-----|
| Unobligated balance available for completion of prior year budget | 4001 | 0 |
| Available for completion of prior year budget | 4002 | 222 |

| | | |
|------|--|----------|
| 4003 | Reprogramming from or to prior year budget plans | -1,873 |
| 4001 | Unobligated balance transferred | -232,216 |
| | | |

| | | |
|------|--|--------|
| 0001 | Unadjusted balance | 2,000 |
| | Decreased by transfers to other accounts | -2,000 |
| | | |

| Budget authority | 2000 | 5,847 |
|------------------|-------|-------|
| 8,847 | 2,000 | 5,847 |

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Army

Research, Development, Test, and Evaluation, Army

15 JAN 81

| | | Program and Financing (In thousands of dollars) | | 1980 Fiscal year program | | |
|---------------------|-------|--|--|--------------------------|-----------|-----------|
| | | Budget Plan (amounts for RDT&E actions programmed) | | Obligations | | |
| Identification code | | 21-2040-0-1-051 | | 1980 actual | 1981 est. | 1982 est. |
| 10.0001 | Total | 3,485,126 | | | 3,193,436 | 261,691 |

Program by activities:

Direct:

| | | | | | | |
|---------|---------------------------------|-----------|--|--|-----------|---------|
| 1. | Technology base | 462,432 | | | 440,303 | 22,129 |
| 2. | Advanced technology development | 140,164 | | | 129,766 | 10,396 |
| 3. | Strategic programs | 241,478 | | | 240,542 | 937 |
| 4. | Tactical programs | 1,470,398 | | | 1,399,389 | 71,009 |
| 5. | Intelligence and communications | 32,504 | | | 28,844 | 4,320 |
| 6. | Defensewide mission support | 499,454 | | | 475,033 | 24,421 |
| | Total direct | 2,846,431 | | | 2,713,219 | 133,212 |
| | Reimbursable program (total) | 608,995 | | | 480,216 | 128,479 |
| 10.0001 | Total | 3,485,126 | | | 3,193,436 | 261,691 |

Financing:

Offsetting collections from:

| | | | | | | |
|---------|--|-----------|--|--|-----------|--|
| 11.0001 | Federal funds | -596,798 | | | -596,798 | |
| 13.0001 | Trust funds | -1,100 | | | -1,100 | |
| 14.0001 | Non-federal sources | -10,797 | | | -10,797 | |
| 21.4001 | Unobligated balance available, start of year | | | | | |
| 24.4001 | Unobligated balance available, end of year | | | | | |
| 39.0001 | Budget authority | 2,846,431 | | | 2,846,431 | |

Budget authority:

| | | | | | | |
|---------|---------------------------------|-----------|--|--|-----------|--|
| 40.0001 | Appropriation | 2,853,331 | | | 2,853,331 | |
| 41.0001 | Transferred to other accounts | -10,100 | | | -10,100 | |
| 42.0001 | Transferred from other accounts | 1,200 | | | 1,200 | |
| 43.0001 | Appropriation (adjusted) | 2,844,431 | | | 2,844,431 | |
| 50.0001 | Reappropriation | 2,000 | | | 2,000 | |

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Research, Development, Test, and Evaluation, Army

Program and Financial Summary Statement

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Army

Research, Development, Test, and Evaluation, Army

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| | | Program and Financing (in thousands of dollars) | | 1982 Fiscal Year program | | |
|--|----------|--|-----------|--------------------------|-------------|-----------|
| | | Budget plan (amounts for RDT&E actions programmed) | | Obligations | | |
| Identification code | | 1980 actual | 1981 est. | 1982 est. | 1980 actual | 1981 est. |
| 21-2040-0-1-061 | | | | | | |
| Program by activities: | | | | | | |
| Direct: | | | | | | |
| 1. Technology base | | | | 616,710 | | |
| 2. Advanced technology development | | | | 207,556 | | |
| 3. Strategic programs | | | | 345,516 | | |
| 4. Tactical programs | | | | 1,614,332 | | |
| 5. Intelligence and communications | | | | 65,338 | | |
| 6. Defensewide mission support | | | | 737,746 | | |
| Total direct | | | | 3,677,200 | | |
| Reimbursable program (total) | | | | 552,500 | | |
| Total | 10.0001 | 10.0001 | 10.0001 | 4,129,700 | 4,129,700 | 3,840,620 |
| Financing: | | | | | | |
| Offsetting collections from: | | | | | | |
| Federal funds | | | | -530,700 | | |
| Trust funds | | | | -225 | | |
| Non-federal sources | | | | -21,575 | | |
| Unobligated balance available, end of year | | | | | | |
| Budget authority | 40.00001 | | | 3,577,200 | | |

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Research, Development, Test, and Evaluation, Army

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Object Classification (in thousands of dollars)

| Identification code | 21-2040-0-1-051 | 1980 actual | 1981 est. | 1982 est. |
|--|--|------------------|------------------|------------------|
| Direct obligations | | | | |
| Personnel compensation: | | | | |
| 111.101 | Full-time permanent positions | 294,635 | 384,836 | 359,000 |
| 111.301 | Positions other than full-time permanent | 2,607 | 3,000 | 3,000 |
| 111.601 | Other personnel compensation | 13,121 | 14,000 | 14,000 |
| 111.901 | Total personnel compensation | 310,363 | 401,836 | 376,000 |
| Personnel benefits: civilian personnel | | | | |
| 112.101 | Travel and transportation of persons | 29,516 | 38,763 | 37,900 |
| 121.001 | Transportation of things | 20,936 | 32,200 | 36,300 |
| 122.001 | Communications, utilities and other rent | 6,596 | 13,500 | 14,000 |
| 123.201 | Printing and reproduction | 18,460 | 24,500 | 27,900 |
| 124.001 | Other services: | 692 | 2,700 | 3,500 |
| 125.002 | Purchases from industrial funds | 248,500 | 270,000 | 312,600 |
| 125.003 | Contracts | 2,100,108 | 2,134,697 | 2,673,954 |
| 126.001 | Supplies and materials | 48,676 | 80,400 | 102,100 |
| 131.001 | Equipment | 59,243 | 54,700 | 57,400 |
| 141.001 | Grants, subsidies, and contributions | 1,116 | 1,200 | 1,200 |
| 199.001 | Total direct obligations | 2,644,506 | 3,054,496 | 3,562,054 |
| Reimbursable obligations: | | | | |
| Personnel compensation: | | | | |
| 211.101 | Full-time permanent positions | 139,000 | 98,100 | 106,200 |
| 212.101 | Personnel benefits: civilian personnel | 13,215 | 10,000 | 10,200 |
| 221.001 | Travel and transportation of persons | 12,331 | 10,900 | 12,100 |
| 222.001 | Transportation of things | 3,674 | 1,200 | 1,400 |
| 223.101 | Standard level user charges | 4,000 | 4,900 | 5,100 |
| 224.001 | Printing and reproduction | 400 | 600 | 600 |
| 225.002 | Other services: | | | |
| 225.003 | Purchases from industrial funds | 83,300 | 44,800 | 105,900 |
| 226.001 | Contracts | 236,978 | 366,618 | 257,400 |
| 231.001 | Supplies and materials | 46,086 | 80,200 | 46,200 |
| 231.001 | Equipment | 21,686 | 11,500 | 9,900 |
| 299.001 | Total reimbursable obligations | 660,670 | 600,818 | 654,000 |
| 999.901 | Total obligations | 3,405,175 | 3,655,314 | 4,096,054 |
| PERSONNEL SUMMARY | | | | |
| TOTAL NUMBER OF PERMANENT POSITIONS | | | | |
| TOTAL COMPENSABLE WORK YEARS: | | | | |
| FULL-TIME EQUIVALENT EMPLOYMENT | | | | |
| FULL-TIME EQUIVALENT OF OVERTIME AND HOLIDAY HOURS | | | | |
| AVERAGE ES SALARY | | | | |
| AVERAGE GS GRADE | | | | |
| AVERAGE GS SALARY | | | | |
| AVERAGE SALARY OF UNPAID POSITIONS | | | | |
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DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY
PROGRAM ELEMENT LISTING
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| 2. Advanced Technology Development | 13 |
| 3. Strategic Programs | 15 |
| 4. Tactical Programs | 15 |
| 5. Intelligence and Communications | 15 |
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Section 2 (Contd)

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PROGRAM ELEMENT LISTING
INTRODUCTION AND EXPLANATION OF CONTENTS

This section has been prepared for the purpose of providing summary program element budget information concerning the US Army Research, Development, Test and Evaluation Program. The listing is preceded by three summaries: the first by Research Categories (Program), the second by Budget Activities, and the third by FDP Programs.

A separate document, Descriptive Summaries, furnishes detail by project. In addition, it furnishes narrative information on all Research, Development, Test and Evaluation (R&T) program elements and projects of \$5.0 million or more. The index number in the right-hand column of this Program Element Listing refers to the appropriate page in the Descriptive Summaries. The funding information reflected in these volumes corresponds to that contained in the President's Budget except for FY 1980. FY 1980 in the Descriptive Summaries is restructured for comparability with the FY 1982 budget request.

A direct comparison of FY 1980, FY 1981, and FY 1982 data in this Program Element Listing with data submitted in the Program Element Listing dated January 1980 will reveal significant differences. Narrative explanation of these changes is included in the appropriate individual Program Element Descriptive Summary.

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FY 1982 R D T + E PROGRAM

SUMMARY

EXHIBIT R-1

DATE 15 JAN 1981

| | FY 1980 | FY 1981 | FY 1982 | FY 1983 |
|--|----------------------|-----------|-----------|-----------|
| SUMMARY RECAP OF RESEARCH CATEGORIES | THOUSANDS OF DOLLARS | | | |
| RESEARCH | 130,701 | 144,577 | 179,203 | 212,003 |
| EXPLORATORY DEVELOPMENT | 331,731 | 361,030 | 437,507 | 492,980 |
| ADVANCED DEVELOPMENT | 631,150 | 701,441 | 921,950 | 1,367,634 |
| ENGINEERING DEVELOPMENT | 1,171,281 | 1,183,394 | 1,145,728 | 1,042,227 |
| MANAGEMENT AND SUPPORT | 448,323 | 534,627 | 687,561 | 739,686 |
| RESEARCH AND DEVELOPMENT (FYDP PROGRAM 6) | 2,713,186 | 2,325,069 | 3,371,949 | 3,854,535 |
| OPERATIONAL SYSTEMS DEVELOPMENT | 133,245 | 161,688 | 205,251 | 317,516 |
| TOTAL RESEARCH DEVELOPMENT TEST + EVAL. ARMY | 2,846,431 | 3,086,757 | 3,577,200 | 4,172,053 |
| SUMMARY RECAP OF BUDGET ACTIVITIES | | | | |
| TECHNOLOGY BASE | 462,432 | 505,607 | 616,710 | 704,982 |
| ADVANCED TECHNOLOGY DEVELOPMENT | 140,164 | 166,316 | 207,551 | 324,991 |
| STRATEGIC PROGRAMS | 241,479 | 263,246 | 345,516 | 405,760 |
| TACTICAL PROGRAMS | 1,470,398 | 1,527,643 | 1,614,332 | 1,837,679 |
| INTELLIGENCE AND COMMUNICATIONS | 32,504 | 37,472 | 55,336 | 92,525 |
| DEFENSEWIDE MISSION SUPPORT | 499,454 | 581,473 | 737,746 | 802,169 |
| TOTAL RESEARCH DEVELOPMENT TEST + EVAL. ARMY | 2,846,431 | 3,086,757 | 3,577,200 | 4,172,053 |
| SUMMARY RECAP OF FYDP PROGRAMS | | | | |
| STRATEGIC FORCES | 100,741 | 119,473 | 9,500 | 39,500 |
| GENERAL PURPOSE FORCES | 32,504 | 42,215 | 140,511 | 209,303 |
| INTELLIGENCE AND COMMUNICATIONS | 2,713,186 | 2,925,069 | 55,240 | 66,715 |
| RESEARCH AND DEVELOPMENT (FYDP PROGRAM 6) | | | 3,371,941 | 3,854,535 |
| TOTAL RESEARCH DEVELOPMENT TEST + EVAL. ARMY | 2,846,431 | 3,086,757 | 3,577,200 | 4,172,053 |

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APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST + EVAL. ARMY

DEPARTMENT OF THE ARMY
FY 1982 R D + EVAL. ARMY

EQUIPMENT

DATE: 15 MAR 1981

| LINE ITEM | ITEM DESCRIPTION | ACT | FY 1980 | FY 1981 | FY 1982 | FY 1983 | FY 1984 | FY 1985 | FY 1986 | FY 1987 | FY 1988 | FY 1989 | FY 1990 | FY 1991 | FY 1992 | FY 1993 | DISPOSAL/RECYCLING | DISPOSITIVE SUMMARY | PAGE NUMBER |
|--|------------------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|---------|--------------------|---------------------|-------------|
| 1 6101A IN-HOUSE DEFENSE INVESTMENT FOR C&E | 1 | 17,151 | 15,49 | 21,962 | 24,362 | 24,362 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | I-1 | |
| 2 6102A DEFENSE IN SCIENTIFIC SCIENCES | 1 | 113,430 | 121,303 | 157,335 | 167,635 | 167,635 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | I-6 | |
| 3 62105A MATERIALS | 1 | 127,345 | 11,525 | 11,525 | 12,557 | 12,557 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | I-90 | |
| 4 6211A ATMOSPHERIC AND ENVIRONMENTAL CONDITIONS | 1 | 5,97 | 5,711 | 6,340 | 6,340 | 6,340 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | I-95 | |
| 5 6212A FUZE/PROJECTILE AND EFFECTS/FLUIDICS | 1 | 6,767 | 6,052 | 7,030 | 9,765 | 9,765 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | I-101 | |
| 6 62201A AIRCRAFT WEARABLE TECHNOLOGY | 1 | 1,901 | 1,624 | 2,634 | 2,935 | 2,935 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | I-108 | |
| 7 62202A AIRCRAFT AVIATOR'S TECHNOLOGY | 1 | 6,741 | 5,744 | 7,205 | 5,155 | 5,155 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | I-113 | |
| 8 62203A AIRCRAFT AVIATOR'S EQUIPMENT TECHNOLOGY | 1 | 16,323 | 17,713 | 21,619 | 25,525 | 25,525 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | I-119 | |
| 9 6221A AIRCRAFT FLIGHT EQUIPMENT | 1 | 1,170 | 1,49 | 1,766 | 2,069 | 2,069 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | I-124 | |
| 10 6221A MISSILE IF TECHNOLOGY | 1 | 28,119 | 26,067 | 33,753 | 42,075 | 42,075 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | I-129 | |
| 11 52206A HIGH ENERGY LASER TECHNOLOGY | 1 | 1,320 | 16,275 | 27,503 | 32,077 | 32,077 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | I-136 | |
| 12 52207A TANK AND AUTOMATIC TECHNOLOGY | 1 | 12,152 | 12,971 | 16,217 | 19,929 | 19,929 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | I-143 | |
| 13 62601A LARGE CAN AND NUCLEAR TECHNOLOGY | 1 | 21,30 | 24,577 | — | — | — | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | I-148 | |
| 14 62617A SMALL CAN AND FREE CHIP TECHNOLOGY | 1 | 8,957 | 13,521 | 16,704 | 12,750 | 12,750 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | I-154 | |
| 15 62618A BALLISTICS TECHNOLOGY | 1 | 16,176 | 17,487 | 25,233 | 28,790 | 28,790 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | I-160 | |
| 16 62620A CHEMICAL MULITIONS CHEMICAL CRAFT SP | 1 | 6,615 | 5,261 | 8,760 | 7,012 | 7,012 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | I-165 | |
| 17 62701A COMMUNICATIONS EQUIPMENT | 1 | 10,461 | 6,564 | 8,162 | 8,575 | 8,575 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | I-170 | |
| 18 62702A CHIEF SURVEY INSTRUMENT ACC/ID | 1 | 5,113 | 5,133 | 4,593 | 4,593 | 4,593 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | I-178 | |
| 19 62703A ENVIRONMENTAL CRITERIA DEV | 1 | 3,127 | 3,165 | 2,315 | 2,810 | 2,810 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | I-183 | |
| 20 62704A ELECTRONIC AND ELECTRO-MECH DEVICES | 1 | 15,161 | 13,113 | 16,779 | 16,240 | 16,240 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | I-188 | |
| 21 62705A OPTICAL FIBER/OPTICAL CABLE/ WIRE | 1 | 11,767 | 11,411 | 15,344 | 14,450 | 14,450 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | I-199 | |
| 22 62706A INFRARED SENSORS | 1 | 4,550 | 5,620 | 6,627 | 6,934 | 6,934 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | I-204 | |
| 23 62707A ELECTRONIC DATA PROCESSING | 1 | 10,114 | 10,114 | 14,273 | 15,019 | 15,019 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | I-208 | |

UNCLASSIFIEDDEPARTMENT OF THE ARMY
FY 1982 R&D T+E L&G CREAM

APPROVAL NUMBER: 2040-A RESEARCH DEVELOPMENT TEST + EVAL. ARMY

DATE: 1 JULY 1981

| PLACEMENT | ITEM IDENTIFICATION | ITEM Nomenclature | ACT | FY 1982 | FY 1983 | FY 1984 | FY 1985 | FY 1986 | FY 1987 | FY 1988 | FY 1989 | DESCRITIVE SUMMARY | DATE: 1 JULY 1981 |
|-----------|---------------------|---|-----|---------|---------|---------|---------|---------|---------|---------|---------|--------------------|-------------------|
| | | | | | | | | | | | | | PAGE NUMBER |
| 1.0 | 63101A | HEALTH HAZARD PREVENTION | 1 | 6,572 | 12,310 | 6,412 | 10,612 | 0 | 1-335 | | | | |
| 1.1 | 63102A | CIVILIAN MEDICAL MATERIAL | 1 | 457 | | | | 0 | --- | | | | |
| 1.2 | 63103A | MEDICAL SYSTEMS IN CLINICAL DEFENSE | 1 | 2,555 | | | | 0 | --- | | | | |
| 1.3 | 63104A | ENERGY WEAPON FOR MILITARY FACILITY TECHNOLOGY BASE | 1 | 452,422 | 1,450 | 1,709 | 1,890 | 0 | 1-353 | | | | |
| 2.1 | 63105A | MATERIALS SCALE UP | 2 | 2,910 | 2,925 | 5,535 | 9,966 | 0 | 1-357 | | | | |
| 2.2 | 63106A | FUELS AND LUBRICANTS | 2 | 3,815 | 940 | 2,349 | 2,912 | 0 | 1-362 | | | | |
| 2.3 | 63201A | AIRCRAFT FIGHTER PLANTS AND PROPULSION | 2 | 8,410 | 4,351 | 3,019 | 26,761 | 0 | 1-366 | | | | |
| 3.1 | 63206A | AIRCRAFT WEAPONS | 2 | 770 | 2,540 | 10,511 | 24,790 | 0 | 1-371 | | | | |
| 3.2 | 63207A | AIRCRAFT AVIONICS EQUIPMENT | 2 | 1,557 | 2,320 | 4,190 | 7,300 | 0 | 1-380 | | | | |
| 3.3 | 63208A | AIR MOBILITY SUPPORT | 2 | 301 | 1,656 | 1,642 | 3,201 | 0 | 1-385 | | | | |
| 5.7 | 63211A | ROTARY WING CONTROLS FOR AIR STRUCTURES | 2 | 5,057 | 12,921 | 27,021 | 41,084 | 0 | 1-390 | | | | |
| 5.8 | 63212A | TIFF TILT ROTOR RESEARCH AIRCRAFT (H) | 2 | 950 | | | 0 | --- | | | | | |
| 5.9 | 63216A | SYNTHETIC FLIGHT SIMULATORS | 2 | 2,099 | 6,437 | 1,804 | 5,764 | 0 | 1-403 | | | | |
| 6.0 | 63218A | ATRIFTOP EQUIP AND TERMINODES | 2 | 605 | 1,263 | 2,752 | 4,709 | 0 | 1-411 | | | | |
| 6.1 | 63221A | NOE AVIATION FOR NAVIGATION EQUIPMENT | 2 | 2 | 1,609 | 4,374 | 11,570 | 0 | 1-415 | | | | |
| 6.2 | 63305A | TERMINALLY GUIDED PROJECTILES | 2 | 2,970 | 10,658 | 13,273 | 19,635 | 0 | 1-420 | | | | |
| 6.3 | 63313A | HL/ROCKET COMPONENTS | 2 | 2,624 | 6,419 | 317 | 530 | 0 | 1-428 | | | | |
| 6.4 | 63314A | HII ENERGY LASER COMPONENTS | 2 | 19,000 | | | 0 | --- | | | | | |
| 6.5 | 63602A | ADVANCED LAND MOB SYSTEMS CONCEPTS | 2 | 17,915 | 34,428 | 9,421 | 16,614 | 0 | 1-432 | | | | |
| 6.6 | 63606A | LANDMINE WARFARE, GARTIER DEV | 2 | 2,076 | 4,631 | 6,923 | 9,516 | 0 | 1-436 | | | | |
| 6.7 | 63607A | JOINT SERVICE SMALL ARMS PROGRAM (ISSAP) | 2 | 700 | | | 0 | --- | | | | | |
| 6.8 | 63716A | CONTAINMENT AND BARRIER DEVICE MATERIALS | 2 | 1,711 | | | 0 | --- | | | | | |

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DEPARTMENT OF THE ARMY
FY 1982 RDT + E PROGRAM
APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST + EVAL. ARMY

EXHIBIT R-1
DATE: 15 JAN 1981

| PROGRAM LINE ELEMENT NO | ITEM NOMENCLATURE | ACT | THOUSANDS OF DOLLARS | | | DESCRIPTIVE SUMMARY | PAGE NUMBER |
|-------------------------|--------------------------------------|-----|----------------------|---------|---------|---------------------|-------------|
| | | | FY 1980 | FY 1981 | FY 1982 | | |
| 69 63621A | COMBAT VEHICLE PROPULSION SYS | 2 | 5,810 | 4,590 | 13,186 | 19,514 U | 1-441 |
| 70 63626A | ADVANCED DIESEL ENGINE | 2 | 14,200 | | | U | --- |
| 71 63631A | CMBT VEH TURRET AND CHASSIS SUBSYS | 2 | 4,024 | 5,018 | 0,014 | 13,442 U | 1-448 |
| 72 63702A | ELECTRIC POWER SOURCES | 2 | 3,700 | 3,916 | 5,177 | 3,260 U | 1-452 |
| 73 63710A | NIGHT VISION ADVANCED DEVELOPMENT | 2 | 13,801 | 20,719 | 29,306 | 34,208 U | 1-456 |
| 74 63725A | REMOTELY PILODED VEHICLES/DRONES | 2 | 3,320 | 4,905 | 4,343 | 7,333 U | 1-465 |
| 75 63731A | MANPOWER AND PERSONNEL | 2 | 3,085 | 3,065 | 4,675 | 6,360 U | 1-470 |
| 76 63732A | COMBAT MEDICAL MATERIAL | 2 | 111 | 132 | 191 | 225 U | 1-475 |
| 77 63734A | COMBAT ENGINEERING SYSTEMS | 2 | | | 269 | 258 U | 1-478 |
| 78 63739A | HUMAN FACTORS IN TNS/OPER EFFECT | 2 | 1,903 | 2,372 | 3,165 | 3,777 U | 1-482 |
| 79 63742A | ADV ELECTRONIC DEVICES DEV | 2 | 2,065 | | 2,278 | 4,397 U | 1-487 |
| 80 63743A | EDUCATION AND TRAINING | 2 | 9,360 | 7,973 | 9,499 | 9,748 U | 1-493 |
| 81 63744A | TRAINING SIMULATION | 2 | 2,746 | 1,413 | 2,243 | 2,422 U | 1-498 |
| 82 63747A | SOLDIER SUPPORT/SURVIVABILITY | 2 | | 3,276 | 3,181 | 3,307 U | 1-502 |
| 83 63748A | ADV DEV OF AUTOMATIC TEST ED/SYS | 2 | 1,430 | 8,493 | 14,631 | 9,665 U | 1-507 |
| 84 63749A | TECHNICAL VULNERABILITY REDUCTION | 2 | 2,850 | 2,011 | 1,274 | 3,840 U | 1-514 |
| 85 63750A | DRUG AND VACCINE DEVELOPMENT | 2 | 2,545 | 4,766 | 5,184 | 7,781 U | 1-519 |
| 86 63751A | MEDICAL DEFENSE AGAINST CHEM WARFARE | 2 | | | 3,000 | 3,000 U | 1-521 |

UNCLASSIFIED

DEPARTMENT OF THE ARMY
FY 1982 R D T + E PROGRAM

EXHIBIT R-1

APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST + EVAL. ARMY

DATE: 15 JAN 1981

| PROGRAM ELEMENT NUMBER | ITEM NOMENCLATURE | ACT | THOUSANDS OF DOLLARS | | DESCRIPTIVE SUMMARY |
|--|-----------------------------------|---------|----------------------|---------|---------------------|
| | | | FY 1980 | FY 1981 | |
| 67 63752A DEMILITARIZATION CONCEPTS | 2 | 140,164 | 166,516 | 4,000 | 7,000 U 1-527 |
| | ADVANCED TECHNOLOGY DIV/IMPLEMENT | | | 207,556 | 324,991 |
| 8G 63304A BMDO ADVANCED TECHNOLOGY | 3 | 119,851 | 123,391 | 129,600 | 146,623 U 11-1 |
| 89 63308A BALLISTIC MSL DEF SYS TECH | 3 | 120,814 | 144,855 | 215,826 | 269,143 U 11-6 |
| 90 63735A WMMCS ARCHITECTURE | 3 | 811 | | | 0 --- |
| | STRATEGIC PROGRAMS | 241,479 | 268,246 | 345,516 | 409,766 |
| 91 63215A JOINT SURVIVABILITY INVESTIGATIONS | 4 | 600 | 645 | 9,18 | 1,130 U 11-11 |
| 92 63303A SURF-TU-SURF MSL ROCKET SYS | 4 | 70,203 | 790 | 3,057 | 16,705 U 11-15 |
| 93 63307A SMART RANGE AIR DEF SFLF PROT WPN | 4 | | 6,842 | | 0 11-21 |
| 94 63316A ADVANCED ROCKET CONTROL SYSTEM | 4 | | 27,100 | | 0 --- |
| 95 63320A CURPS SUPPORT WEAPON SYSTEM | 4 | 9,400 | 14,294 | .0,000 | 73,764 U 11-22 |
| 96 63536A AIMY STANDOFF JAMMER SUPPRESSION SYSTEM | 4 | | | 4,000 | 6,000 U 11-27 |
| 97 C3604A NUCLEAR MUNITIONS AND RADIACS | 4 | 1,677 | 1,724 | | 0 11-30 |
| 98 63607A JOINT SERVICE SMALL ARMS PROGRAM (JSSAP) | 4 | | | 3,600 | 0 11-37 |
| 99 63608A WEAPONS AND AMMUNITION | 4 | 616 | | | 0 --- |
| 100 63612A INF MANPORTABLE ANTI-ARMOR WPN SYS | 4 | 2,000 | 19,731 | 52,972 | 105,993 U 11-42 |
| 101 63615A LETHAL CHEMICAL MUNITIONS CONCEPTS | 4 | 1,047 | 1,820 | 8,347 | 9,471 U 11-46 |
| 102 63719A LANDMINE/BARRIER SYS | 4 | 2,181 | 4,471 | 6,102 | 8,728 U 11-51 |
| 103 63623A LANDMINE SYSTEMS | 4 | 1,800 | | | 0 --- |
| 104 63677A COMBAT SUPPORT MUNITIONS | 4 | 2,815 | 2,334 | 6,275 | 4,029 U 11-55 |
| 105 63628A FIELD ARTILLERY AMMO DEV | 4 | 4,581 | 12,398 | 25,190 | 28,777 U 11-59 |
| 106 63629A FIELD ARTILLERY CAVALRY SYSTEMS | 4 | 3,646 | 5,652 | 2,074 | 15,556 U 11-70 |

DEPARTMENT OF THE ARMY
FY 1982 R D T + E PROGRAM
APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST + EVAL. ARMY

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DATE: 15 JAN 1981

| PROGRAM LINE ELEMENT NO NUMBER | ITEM NOMENCLATURE | THOUSANDS OF DOLLARS | | | | DESCRIPTIVE SUMMARY | |
|--------------------------------------|---|----------------------|---------|---------|---------|------------------------|------------------|
| | | ACT | FY 1980 | FY 1981 | FY 1982 | FY 1983 | E PAGE NUMBER |
| 107 | 63632A ARMORED C1121 SPT VEHICLE FAMILY | 4 | 3,700 | 2,224 | 103 | 0 | 11-15 |
| 108 | 63635A ADVANCED MIL II-PURPOSE ARMORED SYSTEM | 4 | - | - | 20,199 | 6,955C U | 11-80 |
| 109 | 63705A PHYSICAL SECURITY | 4 | 3,375 | 3,100 | 3,087 | 5,555C U | 11-81 |
| 110 | 63706A IDENTIFICATION-FRIEND OR FOE DEV | 4 | 4,045 | 416 | 7,647 | 4,194 U | 11-88 |
| 111 | 63707A COMMUNICATIONS DEVELOPMENT | 4 | 6,703 | 4,075 | 6,451 | 3,370 U | 11-96 |
| 112 | 63711A ACFT SURVEW SELF-PROTECTION | 4 | 6,975 | 7,315 | 12,426 | 20,103 U | 11-100 |
| 113 | 63712A MAPPING AND GEODESY | 4 | 2,094 | - | - | 0 | --- |
| 114 | 63713A JOINT TACTICAL INFO DISTRIBUTION SYSTEMS | 4 | - | 20,477 | 19,067 | 41,233 U | 11-108 |
| 115 | 63717A SPECIAL PURPOSE DETECTORS | 4 | - | - | - | 5,64 U | --- |
| 116 | 63721A CHEMICAL DEFENSE MATERIEL CONCEPTS | 4 | 14,088 | 21,231 | 20,476 | 16,056 U | 11-113 |
| 117 | 63723A TACTICAL AUTOMATION | 4 | 8,964 | 12,075 | 22,379 | 27,182 U | 11-129 |
| 118 | 63726A COMBAT SUPPORT EQUIPMENT | 4 | 7,528 | 6,032 | 6,924 | 8,303 U | 11-140 |
| 119 | 63730A TACTICAL SURVEILLANCE SYSTEM | 4 | 11,720 | 10,933 | - | - | 11-146 |
| 120 | 63737A ANTI-RADIATION MSI. COUNTER MEASURES | 4 | 4,540 | 4,622 | - | - | 11-150 |
| 121 | 63740A DIV AIR DEFENSE COMD/CNTRL | 4 | 3,000 | 14,085 | 13,378 | 12,562 U | 11-156 |
| 122 | 63745A TAC ELECTRICAL SPT MEASURE SYS | 4 | 15,030 | 12,576 | - | - | 11-163 |
| 123 | 63746A SINGLE CHANNEL GRD/ABN RADIO SUB-SYS | 4 | 20,475 | 15,714 | 15,526 | 9,135 U | 11-174 |
| 124 | 63755A TAC ELEC C/M SYS | 4 | 9,859 | 9,367 | - | - | 11-183 |
| 125 | 64201A AIRCRAFT AVIONICS | 4 | 1,748 | - | - | U | --- |
| 126 | 64202A AIRCRAFT WEAPONS | 4 | 6,403 | 5,130 | 3,568 | 729 U | 11-198 |
| 127 | 64203A AERIAL SCOUT | 4 | 7,450 | - | - | U | --- |
| 128 | 64204A AIR MOBILITY SUPPORT EQUIPMENT | 4 | 250 | 1,187 | 3,064 | 3,958 U | 11-202 |
| 129 | 64206A UH-60A BLACK HAWK | 4 | 2,259 | 5,046 | 4,242 | 3,110 U | 11-208 |

DEPARTMENT OF THE ARMY
FY 1982 R D I + E PROGRAM

APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST + EVAL. ARMY

FARRELL R.

DATE: 5 JAN 1981

| PROGRAM NO ELEMENT NUMBER | ITEM NOMENCLATURE | ACT | FY 1980 | FY 1981 | FY 1982 | TRILLION AND CENTS DOLLARS | FY 1983 C E SUMMARY PAGE NUMBER |
|------------------------------------|---|-----|---------|---------|---------|----------------------------|--|
| 130 | 6-1227A ADVANCED ATTACK HELICOPTER | 4 | 176,036 | 172,916 | 94,027 | 0 | 11-212 |
| 131 | 6-4212A COERA TOW | 4 | 945 | 8,515 | 20,074 | 6,561 0 | 11-226 |
| 132 | 6-4213A CH-47 MODERNIZATION | 4 | 22,480 | 576 | 0 | 0 | --- |
| 133 | 6-1215A UH-1 MODERNIZATION | 4 | 200 | 0 | 0 | 0 | 11-231 |
| 134 | 6-4216A AIRCRAFT PROPULSION SYSTEMS | 4 | 1,098 | 0 | 0 | 11,772 0 | --- |
| 135 | 6-1217A SYNTHETIC FLIGHT TRAINING SYSTEMS | 4 | 823 | 2,533 | 2,360 | 5,160 0 | 11-232 |
| 136 | 6-4218A AIRDROP EQUIP DEVELOPMENT | 4 | 0 | 0 | 0 | 4,656 0 | 11-236 |
| 137 | 6-1220A ARMY HELICOPTER IMPROVEMENT PROG | 4 | 0 | 25,939 | 39,373 | 45,876 0 | 11-240 |
| 138 | 6-1221A SURVEILLANCE SYSTEM | 4 | 0 | 0 | 4,000 | 13,200 0 | 11-245 |
| 139 | 6-4306A STINGER | 4 | 16,827 | 5,960 | 4,255 | 4,546 0 | 11-254 |
| 140 | 6-1307A PATRIOT (CAN-D) | 4 | 126,716 | 51,58 | 32,618 | 32,960 0 | 11-267 |
| 141 | 6-1308A PRECISION LASER DESIGNATOR | 4 | 3,600 | 0 | 0 | 0 | --- |
| 142 | 6-1309A ROI AND | 4 | 11,299 | 12,758 | 0 | 12,439 0 | 11-293 |
| 143 | 6-4310A HELIBORNE MISSILE HELLCIPE | 4 | 61,000 | 45,002 | 24,791 | 19,671 0 | 11-300 |
| 144 | 6-4311A PERSHING II | 4 | 145,765 | 147,378 | 154,107 | 106,895 0 | 11-319 |
| 145 | 6-1313A GRASS BLADE | 4 | 30,215 | 36,125 | 21,342 | 10,603 0 | 11-333 |
| 146 | 6-1314A GENERAL SUPPORT ROCKET SYS | 4 | 0 | 64,393 | 36,038 | 17,330 0 | 11-336 |
| 147 | 6-1316A FIRE AND FORGET HELLCIPE | 4 | 0 | 12,110 | 27,723 | 61,117 0 | 11-354 |
| 148 | 6-1318A DIVISION AIR DEFENSE GUN | 4 | 25,719 | 65,263 | 36,629 | 0 | 11-355 |
| 149 | 6-4321A JOINT TACTICAL FUSION PROGRAM | 4 | 0 | 10,260 | 7,699 | 39,430 0 | 11-356 |
| 150 | 6-4661A INFANTRY SUPPORT WEAPONS | 4 | 0 | 4,546 | 3,973 | 6,183 0 | 11-361 |
| 151 | 6-4662A WEAPONS AND AMMUNITION (H) | 4 | 0 | 1,841 | 0 | 0 | --- |
| 152 | 6-1603A NUCLEAR MUNITIONS | 4 | 0 | 23,077 | 11,379 | 0 | 11-370 |

DEPARTMENT OF THE ARMY
FY 1982 RDT&E PROGRAM
APPROPRIATION: 2040 A RESEARCH DEVELOPMENT TEST + EVAL. ARMY

EXHIBIT R-1

DATE: 15 JAN 1981

| PROGRAM LINE ELEMENT NO NUMBER | ITEM NOMENCLATURE | ACT FY 1980 | FY 1981 | THOUSANDS OF DOLLARS | | DESCRIPTIVE SUMMARY PAGE NUMBER |
|--------------------------------|---|-------------|---------|----------------------|---------|---------------------------------|
| | | | | FY 1982 | FY 1983 | |
| 153 64606A | EXPLOSIVE DEMOLITIONS (H) | 4 | 600 | 0 | 0 | --- |
| 154 64608A | ARMY SHAL. ARMS PROGRAM | 4 | 1,455 | 460 | 400 0 | 11-385 |
| 155 64609A | COMBAT SUPPORT SYSTEMS | 2 | 1,297 | 501 | 2,310 | 2,310 0 |
| 156 64610A | LETHAL CHEMICAL MUNITIONS | 4 | 1,050 | 2,219 | 1,583 0 | 11-393 |
| 157 64612A | COUNTERRMINE AND BARRIERS | 4 | 3,068 | 3,075 | 5,271 0 | 11-398 |
| 158 64614A | FID. ARTY W/PNS/AMMO (155MM) (H) | 4 | 6,211 | 0 | 0 | --- |
| 159 64616A | FIGHTING VEHICLE SYS | 4 | 34,637 | 42,130 | 57,865 | 45,391 0 |
| 160 64617A | VEH RAPID FIRE 'IPN' SYSTEM-BUSMASTER | 4 | 4,167 | 0 | 0 | --- |
| 161 64619A | LANDMINE WARFARE | 4 | 8,742 | 9,572 | 8,310 | 9,949 0 |
| 162 64620A | LANK SYSTEMS | 4 | 51,714 | 51,552 | 29,063 | 13,692 0 |
| 163 64621A | COPPERHEAD | 4 | 9,075 | 6,061 | 3,362 | 2,077 0 |
| 164 64623A | VIFER | 4 | 16,347 | 5,775 | 0 | --- |
| 165 64624A | HIGH MOBILITY MULTI-PURPOSE VEHICLE | 4 | 1,300 | 2,757 | 3,074 | 2,810 0 |
| 166 64626A | FIRE INTEGRATION SFT TEAM VEH | 4 | 7,720 | 3,215 | 9,806 | 7,070 0 |
| 167 64628A | INDIRECT FIRE TRAINING MUNITIONS | 4 | 1,061 | 513 | 1,356 | 1,471 0 |
| 168 64630A | TANK GUN COHERATIVE DEVICE (MCII) | 4 | 40,256 | 67,061 | 74,337 | 42,219 0 |
| 169 64631A | FLD AF T. AMMO (110MM) | 2 | 1,673 | 1,483 | 7,101 0 | 11-481 |
| 170 64632A | 105MM 170MM AMMUNITION | 4 | 3,777 | 5,797 | 4,576 | 4-486 |
| 171 64701A | FOR. FNC-1MFPNG. DEV | 4 | 5,453 | 7,724 | 9,152 | 13,016 0 |
| 172 64702A | JOINT TACTICAL INFO DISTRIBUTION SYSTEMS | 4 | 0 | 16,721 | 16,721 | 14,892 0 |
| 173 64703A | INTEGRATED CLOUDS, SITES, NAVIGATION SYS | 4 | 3,681 | 3,648 | 0 | --- |
| 174 64705A | MORIAK INTEGRATED COMM AND NAVIGATION SYS | 4 | 515 | 18,003 | 6,409 0 | 11-115 |
| 175 64706A | RADIOLOGICAL MEDIUM EQUIPMENT | 4 | 270 | 312 | 147 0 | 11-119 |

DEFENSE INSTITUTE OF THE ARMY
FY 1982 RDT & E PROGRAM

APPROPRIATION: 2040 A RESEARCH DEVELOPMENT, TEST & EVAL, ARMY

EQUIPMENT

DATE: 1-1-1981

| PROGRAM LINE ELEMENT NO. NUMBER | ITEM NOMENCLATURE | FY 1980 | FY 1981 | FY 1982 | THOUSANDS DOLLARS | DESCRIPTION |
|--|-------------------|---------|---------|---------|-------------------|-----------------------------|
| | | | | | | L SUMMARY PAGE NUMBER |
| 176 64709A IDENTIFICATION FRIEND OR FOE E) | 4 | \$00 | 3,010 | 2,173 | 5,242 0 | 111-24 |
| 177 61710A NIGHT VISION DEVICES | 4 | 3,000 | 5,778 | 5,434 | 5,493 0 | 111-28 |
| 178 64711A AIRBORNE SELF-PROTECTION SYS | 4 | 6,768 | 11,574 | 16,440 | 21,163 0 | 111-32 |
| 179 64712A TACTICAL CS SYSTEMS FOR INTELLIGENCE | 4 | 3,984 | 10,682 | 9,137 | 19,378 0 | 111-47 |
| 180 61713A COMBAT FLEETING, CLOTHING AND EQUIPMENT | 4 | | 2,550 | 3,593 | 4,267 0 | 111-61 |
| 181 61714A TACTICAL ELECTRICAL POWER SOURCES | 4 | 4,400 | 5,322 | 2,172 | 1,636 0 | 111-66 |
| 182 64716A MAPPING AND GEODYSY | 4 | 40 | | | 0 | --- |
| 183 61717A GENERAL COMBAT SUPPORT | 4 | 6,903 | 11,570 | 12,231 | 14,531 0 | 111-71 |
| 184 64718A PHYSICAL SECURITY | 4 | 2,362 | 5,872 | 5,862 | 6,213 0 | 111-88 |
| 185 64723A SPECIAL PURPOSE DETECTORS | 4 | 150 | 1,447 | | 0 | --- |
| 186 64724A PHOTOCAL OR ENGINE MATERIAL | 4 | 4,920 | 2,701 | 1,056 | 0 | 111-94 |
| 187 61725A CHIEF CAN DEFENSE MATERIAL | 4 | 1,107 | 17,659 | 38,555 | 43,095 0 | 111-99 |
| 188 64727A COMMAND AND CONTROL | 4 | 1,425 | 2,531 | 15,356 | 16,560 0 | 111-113 |
| 189 64728A COUNTER MORALE RADAR | 4 | 1,100 | | | 0 | --- |
| 190 61730A RFM TFM / PHOTOID VEHICLES | 4 | 49,341 | 51,670 | 59,513 | 34,369 0 | 111-134 |
| 191 64731A COUNTS, BATTERY RADAR | 4 | 3,147 | | | 0 | --- |
| 192 64740A TACTICAL SURVEILLANCE SYSTEM | 4 | 2,291 | 3,432 | | 111-151 | |
| 193 64745A TAC ELECTRO-OPTIC SURVEILLANCE SYS | 4 | 12,128 | 9,280 | | 111-155 | |
| 194 64746A AUTOMATIC INF. SURVEILLANCE SYSTEMS | 4 | | | | 9,016 0 | 111-160 |
| 195 64748A STANDBY TACRAFT ACQUISITION SYSTEM | 4 | 6,015 0 | 35,375 | 71,735 | 79,740 0 | 111-163 |
| 196 64750A TAC IEEE C/M SYS | 4 | 2,516 | 4,277 | | 111-176 | |
| 197 64752A NAVSTAR GLOBAL POS SYS (EST: 100) | 4 | 12,455 | | | 0 | --- |

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DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY
PERFORMER DISTRIBUTION
 (in thousands)

Section 3

Appropriation: Research, Development, Test and Evaluation, Army

| | FY 1980 | FY 1981 | Total Obligational Authority |
|--|-----------|-----------|------------------------------|
| | FY 1981 | FY 1982 | FY 1983 |
| 1. For operation of installations of the reporting R&D Component | 1,050,294 | 1,219,041 | 1,427,703 |
| Government operated | 59,068 | 67,100 | 77,001 |
| Contractor operated | 282,262 | 248,841 | 262,872 |
| For contracts directly in support of work actually performed at installations of the reporting R&D Component | 146,211 | 161,869 | 184,307 |
| For work assigned to other Department of Defense activities | 21,100 | 26,025 | 19,951 |
| For work assigned to activities of other Government agencies | 1,199,216 | 1,232,573 | 1,480,980 |
| For work performed by industrial contractors ("profit" organizations) | 24,470 | 30,243 | 33,278 |
| For work performed by educational institutions | 43,164 | 50,713 | 62,827 |
| a. Designated Fed Contract Res Centers | 7,487 | 8,592 | 10,041 |
| b. Other Institutions | 13,159 | 21,760 | 18,260 |
| 8. For work performed by other "non-profit" organizations | 2,846,431 | 3,086,757 | 3,577,200 |
| a. Designated Fed Contract Res Centers | 7,487 | 8,592 | 10,041 |
| b. Other Institutions | 13,159 | 21,760 | 18,260 |
| 9. Total Research, Development, Test and Evaluation, Army Appropriation | 2,846,431 | 3,086,757 | 3,577,200 |
| | 4,172,051 | | |

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DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY
INSTALLATION ANALYSIS - IN-HOUSE

Section 4

This installation analysis indicates the resources of dollars and manpower utilized by Army installations in the accomplishment of the in-house research, development, test and evaluation effort, including contractor operated installations, under the management control of the Army. Installations reported include both installations classified as research development, or test installations and research, development, or test units located at multi-mission installations. Funds being reported cover both direct costs and indirect or support costs. These funds are a part of project costs shown in the budget on the various projects. The amounts reflected under the category "R&E Funds" include funds received directly through command channels, and reimbursable R&E effort performed for other Army activities and other Department of Defense agencies. "All other funds" reflect the in-house effort at multi-mission installations for other than Research, Development, Test and Evaluation, Military Construction and Military Personnel costs. Military Personnel assigned to R&E activities and other military personnel located at the installation in support of non-R&E activities at multi-mission posts.

The personnel reflected includes spaces assigned and charged directly to the R&E appropriation as reflected in the personnel summary and spaces assigned to Army Industrial Fund installations operated with R&E funds. Contractor personnel shown are engaged in direct support or operation of Army installations.

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Section 4 (Contd)

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INSTALLATION ANALYSIS - IN-HOUSE

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| 71. | | |

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Section 4 (Cont'd)

INSTALLATION ANALYSIS - IN-HOUSE

| Installation and Location Army Indus- trial Fund Installations 1. % | FY | TOA (\$ in Thousands) | | | | | | Civil Service | | | | | | Personnel (Man-Years) | | | | | |
|--|----|-----------------------|--------|-------|-------------------------------|--------|-------|---------------|--------|-------|------------------------------|-------|-------|-------------------------------|-------|-------|---|-------|-------|
| | | RDTE Funds | | | All Other Funds Army | | | Mil. Pers. | | | Paid From Army RDTE | | | Paid From Other RDTE | | | Contractor Paid From Other RDTE | | |
| | | Rgmt | Bureau | Other | Army | Other | Total | RDTE | Other | Total | RDTE | Other | Total | RDTE | Other | Total | RDTE | Other | Total |
| Aberdeen | 80 | 53465 | 14776 | 1878 | 793 | 70912 | 1480 | 18 | 72410 | 1936 | 268 | - | 64 | - | 81 | 1 | 2320 | | |
| Proving Ground, Aber- deen, Maryland | 81 | 54968 | 15300 | 1775 | 800 | 72843 | 1843 | 21 | 74707 | 2316 | 268 | - | 74 | - | 87 | 1 | 2706 | | |
| Arment Research and Development Command, New Jersey | 82 | 68363 | 15600 | 1775 | 800 | 86538 | 1786 | 21 | 88345 | 2331 | 268 | - | 85 | - | 85 | 1 | 2685 | | |
| Arment Research and Development Center, Water- town, Massa- chusetts | 83 | 73412 | 16100 | 1775 | 800 | 92087 | 1691 | 21 | 93799 | 2415 | 268 | - | 81 | - | 81 | 1 | 2765 | | |
| 2. | | | | | | | | | | | | | | | | | | | |
| Arment Research and Development Center, Water- town, Massa- chusetts | 80 | 55418 | 35931 | 11478 | - | 102827 | 1516 | 238 | 104581 | 2823 | 660 | - | - | - | 83 | 13 | 3579 | | |
| Arment Research and Development Center, Water- town, Massa- chusetts | 81 | 57594 | 33052 | 9940 | - | 100556 | 1822 | - | 102378 | 2641 | 660 | - | - | - | 86 | - | 3387 | | |
| Arment Research and Development Center, Water- town, Massa- chusetts | 82 | 70888 | 32850 | 7700 | - | 111438 | 1555 | - | 112993 | 2765 | 660 | - | - | - | 74 | - | 3499 | | |
| Arment Research and Development Center, Water- town, Massa- chusetts | 83 | 71687 | 32700 | 7700 | - | 118087 | 1148 | 397 | 119632 | 2765 | 660 | - | - | - | 55 | 19 | 3499 | | |
| 3. | | | | | | | | | | | | | | | | | | | |
| Army Material and Mechanics | 80 | 13042 | 5236 | 465 | 2235 | 20978 | 311 | - | 21289 | 389 | 57 | 158 | 51 | - | 17 | - | 675 | | |
| Army Material and Mechanics | 81 | 13822 | 5529 | 553 | 2350 | 2225, | 360 | - | 22614 | 389 | 57 | 158 | 50 | - | 17 | - | 671 | | |
| Army Material and Mechanics | 82 | 15880 | 6352 | 635 | 2700 | 25567 | 357 | - | 25924 | 389 | 57 | 158 | 51 | - | 17 | - | 656 | | |
| Army Material and Mechanics | 83 | 20254 | 8102 | 810 | 3443 | 32609 | 355 | - | 32964 | 389 | 57 | 158 | 51 | - | 17 | - | 656 | | |

1/ Exclusive of Military Personnel and Military Construction.

2 ARRACOM AIF located on the Aberdeen installation, includes Ballistic Research Laboratory and Chemical Systems Laboratory.

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Section 4 (Contd)

UNCLASSIFIED
INSTALLATION ANALYSIS - IN-HOUSE

| Installation and Location | FY | TOA (\$ in Thousands) | | | | | | Civil Service Paid | | | | | | PERSONNEL (Man-Years) | | | | | |
|---|---|-----------------------|--------|-------|-----------------------|--------|-------|-----------------------|--------|-------|--------------|-------|-------|-----------------------|-------|-------|-------------|-------|-------|
| | | RDTE Funds | | | All Other Funds | | | Maj. Pers. | | | From Army | | | Contractor Paid | | | In Pers. | | |
| | | Bureau | Army | Other | Bureau | Army | Other | RATE | Other | Total | RATE | Other | Total | RATE | Other | Total | RATE | Other | Total |
| <u>Army Industrial Fund Installations</u> | | | | | | | | | | | | | | | | | | | |
| 4. | | | | | | | | | | | | | | | | | | | |
| 4.1. | Bonet Weapons Laboratory, Watervliet, New York | 80 | 2202 | 4612 | - | - | - | 6814 | 110 | - | 6924 | 81 | 54 | - | - | - | 6 | - | 141 |
| 4.2. | Bureau | 81 | 3164 | 4500 | - | - | - | 7664 | 127 | - | 7791 | 81 | 54 | - | - | - | 6 | - | 141 |
| 4.3. | Army | 82 | 4148 | 4800 | - | - | - | 8948 | 126 | - | 9074 | 81 | 54 | - | - | - | 6 | - | 141 |
| 4.4. | RDTE | 83 | 4403 | 4800 | - | - | - | 9203 | 125 | - | 9328 | 81 | 54 | - | - | - | 6 | - | 141 |
| 5. | | | | | | | | | | | | | | | | | | | |
| 5.1. | Harry Diamond Laboratories, Adelphi, Maryland | 80 | 12770 | 26468 | 7830 | 10874 | 57942 | 37 | 55 | 58034 | 787 | 160 | 218 | - | - | - | 2 | 3 | 1170 |
| 5.2. | Bureau | 81 | 14296 | 26291 | 7359 | 5134 | 51080 | 64 | 64 | 51208 | 886 | 168 | 119 | - | - | - | 3 | 3 | 1179 |
| 5.3. | Army | 82 | 19256 | 32059 | 6545 | 5331 | 63191 | 63 | 63 | 63317 | 952 | 120 | 101 | - | - | - | 3 | 3 | 1179 |
| 5.4. | RDTE | 83 | 19130 | 24930 | 7123 | 6365 | 57528 | 63 | 63 | 57654 | 898 | 144 | 131 | - | - | - | 3 | 3 | 1179 |
| 6. | | | | | | | | | | | | | | | | | | | |
| 6.1. | Missile Research and Development Command, Redstone Arsenal, Alabama | 80 | 73501 | 6533 | 853 | - | 80887 | 2522 | - | 81409 | 1424 | 23 | - | - | - | - | 138 | - | 1585 |
| 6.2. | Bureau | 81 | 73750 | 8132 | 3870 | - | 85752 | 2648 | - | 88400 | 1213 | 58 | - | - | - | - | 125 | - | 1396 |
| 6.3. | Army | 82 | 60183 | 8860 | 1226 | - | 72269 | 2038 | - | 76407 | 1131 | 48 | - | - | - | - | 97 | - | 1276 |
| 6.4. | RDTE | 83 | 53521 | 9932 | 2120 | - | 65573 | 1963 | - | 67536 | 1108 | 30 | - | - | - | - | 94 | - | 1232 |
| Subtotal Army | 80 | 210398 | 93556 | 22506 | 13902 | 360360 | 5976 | 311 | 346647 | 7440 | 1222 | 376 | 88 | - | - | 327 | 17 | 9470 | |
| Industrial Fund | 81 | 217594 | 90804 | 23467 | 8284 | 360149 | 6864 | 85 | 340998 | 7526 | 1265 | 277 | 84 | - | - | 324 | 4 | 9480 | |
| | 82 | 238718 | 100521 | 19881 | 8811 | 367951 | 5925 | 84 | 373960 | 7649 | 1207 | 259 | 35 | - | - | 282 | 4 | 9436 | |
| | 83 | 2,8407 | 96564 | 19528 | 10588 | 375087 | 5345 | 481 | 380913 | 7656 | 1213 | 289 | 35 | - | - | 256 | 23 | 9472 | |

1/ Exclusive of Military Personnel and Military Construction.

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Section 4 (Contd)

UNCLASSIFIED
INSTALLATION ANALYSIS - IR-HOUSE

| Installation and Location | FY | TOA (\$ in Thousands) | | | | | | Civil Services | | | | | | Personnel (In thousands) | | | | | | Contractor Paid | | | Contractor From | | | Personnel Paid | | |
|--|----------------------|----------------------------------|-----------------------|----------------------------------|--------------------------------------|------------------------------|-------------------------------|---------------------|--------------------------------------|------------------------------|------------------|------------------------------|-------------------------|--------------------------|--------------------------|--------------------------|--------------------|------------------------------|-------|--------------------|-------|-------|--------------------|-------|--|-------------------|--|--|
| | | RDT&E Funds | | | All Other Funds 1/ | | | Mil. Pers. | | | RDT&E Other | | | Army RDT&E | | | Contractor Paid | | | Contractor From | | | Personnel Paid | | | | | |
| | | Budget | Bureau | Army | Other | Non | Total | Sub- | Total | RDT&E | Other | Total | RDT&E | Other | Total | RDT&E | Other | Total | RDT&E | Other | Total | RDT&E | Other | Total | | | | |
| 7. Aberdeen Proving Ground, Aber- deen, Maryland | 80 81 82 83 | 51172 23994 16339 18118 | 197 50 80 65 | 67750 76631 80313 89784 | 143113 179631 190178 208860 | 13959 13975 13991 | 12076 1378 1241 1241 | - - - - | 155189 191590 204153 222851 | 1554 1378 1241 1241 | - - - - | 2194 2487 2457 2457 | 82 462 264 278 | - - - - | 223 192 812 812 | 805 462 812 812 | - - - - | 4859 5111 5258 5310 | | | | | | | | | | |
| 8. Aeromedical Research Laboratory, Ft. Rucker, Alabama | 80 81 82 83 | 2916 2957 3449 3687 | - - - - | 582 - - - | 1 - - - | 3499 2957 3449 3687 | 1283 1480 1474 1471 | - - - - | 4782 4437 4923 5158 | 74 65 65 65 | - - - - | - - - - | - - - - | - - - - | - - - - | 77 77 77 77 | - - - - | 151 142 142 142 | | | | | | | | | | |
| 9. Air Defense Board, Ft. Bragg, Texas | 80 81 82 83 | 2391 3043 2520 2766 | - 92 32 77 | 1411 - - - | - 309 95 35 | 112 3444 2647 2878 | 3914 2138 2133 2130 | 1857 - - - | 5771 5582 4780 5008 | 85 85 85 85 | - - - - | - - - - | - - - - | - - - - | - - - - | 117 117 117 117 | - - - - | 202 202 202 202 | | | | | | | | | | |
| 10. Airborne Board, Ft. Bragg, North Carolina | 80 81 82 83 | 1128 1190 1000 1000 | 39 - - - | 23 - - - | 224 149 220 220 | 1414 1339 1220 1220 | 1387 1777 1774 1771 | - - - - | 2801 39 40 40 | 40 39 40 40 | - - - - | - - - - | - - - - | - - - - | - - - - | 87 97 97 97 | - - - - | 127 136 137 137 | | | | | | | | | | |

1/ Exclusive of Military Personnel and Military Construction.

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Section 4 (Cont'd)

UNCLASSIFIED
INSTALLATION ANALYSIS - IN-HOUSE

| Installation and Location | FY | TWA (\$ in Thousands) | | | | | | Personnel (000 Years) | | | | | | | | |
|---|----|-----------------------|-----------------|---------------|-------------------|--------------------------|------------|-----------------------|-------|---------------|-----------------------|-------------------------------|-------------------------------|--------------|-----------------------|----------------------|
| | | ROTE Funds Agent | Funds Ranger | Other Army | Other Non-Army | All Funds 1/ Total | Mil. Pers. | Mil. Other | ROTE | ROTE Other | Civil Service Paid | Civil Service From Army | Civil Service From ROTE | Mil. Paid | Mil. From Other | Mil. From ROTE | Total |
| Industrial Fund Installations | | | | | | | | | | | | | | | | |
| I.1. | | | | | | | | | | | | | | | | |
| Army and Engineer Board, Ft. Knox, Kentucky | 80 | 1581 | 3612 | 9 | - | 7202 | 3618 | - | 10820 | 102 | - | - | - | 227 | - | 329 |
| Army Res. Inv. Board, Ft. Knox, Kentucky | 81 | 5607 | 9798 | - | - | 15405 | 6291 | - | 19696 | 102 | - | - | - | 216 | - | 336 |
| Air Force, Ft. McDowell, Arizona | 82 | 5661 | 6700 | - | - | 12364 | 4450 | - | 16711 | 85 | - | - | - | 238 | - | 323 |
| II. | | | | | | | | | | | | | | | | |
| Army Bio- medical Laboratory, Aberdeen, Maryland | 80 | 6468 | 363 | - | 26 | 6857 | 1061 | - | 7898 | 109 | - | - | - | 62 | - | 171 |
| Army Bio- medical Laboratory, Aberdeen, Maryland | 81 | 8169 | 290 | - | 10 | 8769 | 1232 | - | 9701 | 140 | - | - | - | 67 | - | 207 |
| III. | | | | | | | | | | | | | | | | |
| Army Communica- tive Technical Office, Ft. Castis, Virginia | 82 | 8663 | - | - | - | 8463 | 1282 | - | 9765 | 163 | - | - | - | 72 | - | 235 |
| IV. | | | | | | | | | | | | | | | | |
| Army Communica- tive Technical Office, Ft. Castis, Virginia | 83 | 9747 | - | - | - | 9247 | 1277 | - | 10524 | 163 | - | - | - | 72 | - | 235 |

1/ Exclusive of Military Personnel and Military Construction.

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Section 4 (Contd)

UNCLASSIFIED
INSTALLATION ANALYSIS - IN-HOUSE

| Installation and Location | FY | TOA (\$ in Thousands) | | | | | | PERSONNEL (Man Years) | | | | | |
|---|------|-----------------------|-------|-------|-------------|-------|-------|-----------------------|-------|-------|-----------------|-------|-------|
| | | RTE Funds | | | Bill. Pers. | | | Civil Service | | | Contractor Work | | |
| | | Rte | Other | Other | A1 | Other | Sub- | From | Paid | From | Paid | From | Total |
| Bureau | Army | RTE | Funds | Total | | RTE | Other | Army | Other | Other | Other | Other | Total |
| Army Non-Institutional Fund Installations | | | | | | | | | | | | | |
| 14. | | | | | | | | | | | | | |
| Army Engineer Flight Activity, Edwards Air Force Base, California | 80 | 5294 | 616 | - | 179 | 6089 | - | 828 | 6917 | 100 | - | 7 | 162 |
| | 81 | 4591 | 600 | - | 90 | 5281 | - | 1145 | 6426 | 100 | - | 8 | 174 |
| | 82 | 5199 | 800 | - | - | 5999 | - | 1145 | 7144 | 100 | - | 8 | 174 |
| | 83 | 5759 | 750 | - | - | 6509 | - | 1145 | 7654 | 100 | - | 8 | 174 |
| 15. | | | | | | | | | | | | | |
| Army Institute of Dental Research, Washington, DC | 80 | 1023 | - | - | 61 | 1084 | 1000 | 119 | 2427 | 22 | 2 | - | 60 |
| | 81 | 1213 | - | - | - | 1213 | 1160 | 392 | 2765 | 25 | 2 | - | 60 |
| | 82 | 1418 | - | - | - | 1418 | 1155 | 390 | 2963 | 25 | 2 | - | 60 |
| | 83 | 1483 | - | - | - | 1483 | 1151 | 388 | 3022 | 25 | 2 | - | 60 |
| 16. | | | | | | | | | | | | | |
| Army Materiel Development & Readiness Command, Alexandria, Virginia | 80 | 4618 | - | - | - | 4618 | 588 | - | 5206 | 115 | - | - | 154 |
| | 81 | 5786 | - | - | - | 5786 | 676 | - | 6462 | 118 | - | - | 157 |
| | 82 | 5943 | - | - | - | 5943 | 676 | - | 6619 | 118 | - | - | 157 |
| | 83 | 6914 | - | - | - | 6914 | 676 | - | 7590 | 118 | - | - | 157 |

1/ Exclusive of Military Personnel and Military Construction.

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INSTALLATION ANALYSIS - IN-HOUSE

Section 4 (Contd)

| Installation and Location | FY | TOA (\$ in Thousands) | | | | | | | | | | PERSONNEL (Man-Years) | | | | | | | | | |
|---------------------------------|----|-----------------------|-------|------|-----------------------|-------|------|---------------|-------|------|-----------------------|-----------------------|------|--------------------|------|------|-------------------------|------|------------|-------|-------|
| | | RDTE Funds | | | All Other Funds | | | Mil. Pers. | | | Civil Service Paid | | | Contractor Paid | | | Personnel Mil. Pers. | | | | |
| | | Mil. | Other | Army | Bureau | Other | POD | Sub- | Total | RDTE | Other | Total | From | From | From | From | Other | RDTE | Funds Work | Other | Total |
| Army Non-Indus- | | | | | | | | | | | | | | | | | | | | | |
| trial Fund Installations | | | | | | | | | | | | | | | | | | | | | |
| 17. | | | | | | | | | | | | | | | | | | | | | |
| Army Materiel | 80 | 20661 | 4152 | 268 | - | 22081 | 1272 | 672 | 24025 | 285 | 8 | 32 | - | - | - | 85 | 45 | 455 | 455 | 455 | |
| Development & | 81 | 15237 | 1120 | 335 | - | 16692 | 1278 | 514 | 18484 | 224 | 7 | 36 | - | - | - | 74 | 28 | 369 | 369 | 369 | |
| Readiness Com- | 82 | 9467 | 1270 | 335 | - | 11072 | 1258 | 237 | 12567 | 161 | 4 | - | - | - | - | 72 | 12 | 249 | 249 | 249 | |
| mand, Program | 83 | 9605 | 1343 | 335 | - | 11283 | 1241 | 235 | 12759 | 158 | 4 | - | - | - | - | 71 | 12 | 245 | 245 | 245 | |
| Managers, Vari- | | | | | | | | | | | | | | | | | | | | | |
| ous Locations | | | | | | | | | | | | | | | | | | | | | |
| 18. | | | | | | | | | | | | | | | | | | | | | |
| Army Research | 80 | 4257 | - | - | - | 4257 | 50 | - | 4307 | 94 | - | - | - | - | - | - | - | 2 | - | 96 | 96 |
| Office, Re- | 81 | 5412 | - | - | - | 5412 | 58 | - | 5470 | 94 | - | - | - | - | - | - | - | 2 | - | 96 | 96 |
| search Tri- | 82 | 5900 | - | - | - | 5900 | 57 | - | 5957 | 94 | - | - | - | - | - | - | - | 2 | - | 96 | 96 |
| angle Park, | 83 | 6370 | - | - | - | 6370 | 56 | - | 6426 | 94 | - | - | - | - | - | - | - | 2 | - | 96 | 96 |
| North Carolina | | | | | | | | | | | | | | | | | | | | | |
| 19. | | | | | | | | | | | | | | | | | | | | | |
| Atmospheric | 80 | 10094 | 269 | 231 | 9 | 10603 | 5342 | - | 15945 | 193 | 2 | - | - | - | - | - | - | 356 | - | 551 | 551 |
| Science Labor- | 81 | 10900 | 150 | 100 | - | 11150 | 5937 | - | 17087 | 198 | 2 | - | - | - | - | - | - | 345 | - | 545 | 545 |
| atory, White | 82 | 11500 | - | - | - | 11500 | 5941 | - | 17441 | 199 | 2 | - | - | - | - | - | - | 345 | - | 546 | 546 |
| Sands Missile | 83 | 12100 | - | - | - | 12100 | 5947 | - | 18047 | 199 | 2 | - | - | - | - | - | - | 345 | - | 546 | 546 |
| Range, Las | | | | | | | | | | | | | | | | | | | | | |
| Cruces, New | | | | | | | | | | | | | | | | | | | | | |
| Mexico | | | | | | | | | | | | | | | | | | | | | |

1/ Exclusive of Military Personnel and Military Construction.

UNCLASSIFIED

Section 4 (Cont'd)

UNCLASSIFIED

INSTALLATION ANALYSIS - IN-HOUSE

| Total (in Thousands) | | | | | | | | | | | Personnel (in thousands) | | | | | | | | | | | |
|--|---------------|-------|-------|----------|-------|-------|-------|-------|-------|---------------|--------------------------|------------|-------|----------|-----|-------|-------|------|-------|---------------|-----|-------|
| Installation and Location | | Funds | | Aviation | | Other | | Army | | Civil Service | | Contractor | | Aviation | | Other | | Army | | Civil Service | | |
| Army Non-Industrial Fund | Installations | R&D | Other | Bureau | Other | Other | BOD | Army | Other | Sub-Funds | Total | R&D | Other | Total | R&D | Other | Total | R&D | Other | Total | R&D | Other |
| 20. | | | | | | | | | | | | | | | | | | | | | | |
| Aviation Development Test Activity, Ft. Rucker, Alabama | 80 | 6188 | 418 | 7052 | 150 | 7248 | 150 | 7676 | 150 | 5399 | 12005 | 2198 | - | 6203 | 103 | - | - | - | 146 | - | 249 | 115 |
| Test Activity, Ft. Rucker, Alabama | 82 | 7248 | 150 | 7676 | 150 | 5399 | 12005 | 5213 | 12415 | 1515 | 13930 | 106 | - | - | - | - | - | 88 | - | 192 | 130 | |
| 21. | | | | | | | | | | | | | | | | | | | | | | |
| Aviation Research and Development Command, St. Louis, Missouri | 80 | 21149 | 2181 | 76 | 2987 | 26393 | 683 | 31932 | 784 | 507 | 31223 | 511 | - | 27414 | 516 | 1 | 61 | - | 46 | 21 | 645 | 115 |
| Research and Development Command, St. Louis, Missouri | 81 | 25841 | 2344 | 51 | 3696 | 31932 | 784 | 507 | 31223 | 511 | - | - | - | - | - | - | 72 | - | 46 | 26 | 654 | 130 |
| 22. | | | | | | | | | | | | | | | | | | | | | | |
| Aviation Test Board, Ft. Rucker, Alabama | 80 | 3397 | 817 | - | - | - | - | 4214 | 1254 | - | 54668 | 36 | - | - | - | - | - | 79 | - | 94 | 94 | 130 |
| Test Board, Ft. Rucker, Alabama | 81 | 2325 | - | - | - | 2325 | 1721 | - | 40466 | 36 | - | - | - | - | - | - | 94 | - | 96 | 95 | 130 | |
| 23. | | | | | | | | | | | | | | | | | | | | | | |
| Aviation Test Board, Ft. Rucker, Alabama | 82 | 1633 | - | - | - | 1633 | 1718 | - | 3351 | 36 | - | - | - | - | - | - | 94 | - | 95 | 94 | 130 | |
| Test Board, Ft. Rucker, Alabama | 83 | 1863 | - | - | - | 1863 | 1716 | - | 3579 | 36 | - | - | - | - | - | - | 94 | - | 95 | 94 | 130 | |

11 Exclusive of Military Personnel and Military Construction.

UNCLASSIFIED

Section 4 (Cont'd)

UNCLASSIFIED
INSTALATION ANALYSIS - IN-HOUSE

| Installation and Location, Army Non-In- dustrial Fund Installations | FY | TOA (\$ in Thousands) | | | | | | | | | | PERSONNEL (Other-Vans) | | | | | |
|--|----|-----------------------|-------|------|-----------------------|-------|------|---------------|-------|-------|-------|------------------------|-------|-------|--------------------|--------------|------------------------|
| | | ROUTE Funds | | | All other Funds | | | Mil. Funds | | | Pers. | Civil Service Paid | | | Contractor Paid | | |
| | | Mgmt | Other | Army | Mgmt | Other | Army | Mgmt | Other | Total | Mil. | Sub- | ROUTE | Other | Total | From Army | From Other ROUTE | From Other ROUTE |
| 23. | | | | | | | | | | | | | | | | | |
| Avionics Laboratory, Ft. Monmouth, New Jersey | 80 | 11590 | 17984 | 255 | - | 31838 | 228 | 120 | 32186 | 138 | 1 | - | 22 | - | 15 | 8 | 384 |
| | 81 | 16648 | 19219 | 2000 | - | 37667 | 275 | 138 | 38080 | 341 | 2 | - | 23 | - | 16 | 8 | 190 |
| | 82 | 17499 | 19843 | 2500 | - | 39842 | 290 | 138 | 60270 | 343 | 2 | - | 24 | - | 17 | 8 | 394 |
| | 83 | 22364 | 19328 | 1500 | - | 43192 | 289 | 138 | 63619 | 343 | 2 | - | 20 | - | 17 | 8 | 390 |
| 24. | | | | | | | | | | | | | | | | | |
| Balistic Missile Defense Advanced Technology Center, Huntsville, Alabama | 80 | 5184 | - | - | - | 5184 | 198 | - | 5382 | 103 | - | - | - | - | 5 | - | 111 |
| | 81 | 5707 | - | - | - | 5707 | 233 | - | 5940 | 103 | - | - | - | - | 8 | - | 111 |
| | 82 | 6040 | - | - | - | 6040 | 229 | - | 6269 | 103 | - | - | - | - | 8 | - | 111 |
| | 83 | 3764 | - | - | - | 6766 | 275 | - | 6989 | 103 | - | - | - | - | 8 | - | 111 |
| 25. | | | | | | | | | | | | | | | | | |
| Balistic Missile Defense Program Office, Alexandria, Virginia | 80 | 687 | - | - | - | 487 | 298 | - | 785 | 13 | - | - | - | - | 12 | - | 25 |
| | 81 | 600 | - | - | - | 600 | 350 | - | 950 | 13 | - | - | - | - | 12 | - | 25 |
| | 82 | 632 | - | - | - | 632 | 342 | - | 974 | 13 | - | - | - | - | 12 | - | 25 |
| | 83 | 673 | - | - | - | 673 | 338 | - | 1011 | 13 | - | - | - | - | 12 | - | 25 |

1/ Exclusive of Military Personnel and Military Construction.

UNCLASSIFIED

Section 4 (Cont'd)

UNCLASSIFIED

INSTALLATION ANALYSIS - IN-HOUSE

| Installation and Location | FY | TOA (\$ in Thousands) | | | | | | CIVIL SERVICE PERSONNEL (Man-Years) | | | | | | CIVIL SERVICE PERSONNEL (Man-Years) | | | | | |
|---|--|-------------------------|------------------------|------------------------|-----------------------|---------------|-------|--|---------------|-------|--------------------------|--|--------------------------|--|--------------------------|--|------------------------------|------------------------------|------------------------------|
| | | RDT&E Funds Borrowed | RDT&E Army Funds | Other Army Funds | Alt other Funds | Sub- Total | Rate | Alt. Personnel | Sub- Total | Rate | Civil Service Paid | Civil Service From Other RDT&E | Civil Service Paid | Civil Service From Other RDT&E | Civil Service Paid | Civil Service From Other RDT&E | Contra or Bal. Paid | Contra or Bal. Paid | Contra or Bal. Paid |
| Army Non-Industrial Fund Installations | | | | | | | | | | | | | | | | | | | |
| 26. | Balistic Missile Defense Systems Command, Huntsville, Alabama | 80 | 5808 | - | - | - | 5808 | 260 | - | 6068 | 175 | - | - | - | - | 11 | - | 186 | 186 |
| | 81 | 8269 | - | - | - | - | 8269 | 304 | - | 8573 | 175 | - | - | - | - | 11 | - | 186 | 186 |
| | 82 | 10472 | - | - | - | - | 10472 | 627 | - | 11099 | 200 | - | - | - | - | 23 | - | 223 | 247 |
| | 83 | 11994 | - | - | - | - | 11994 | 618 | - | 12612 | 224 | - | - | - | - | 23 | - | 247 | 247 |
| 27. | Gold Regions Research & Engineering Laboratory, Hanover, New Hampshire | 80 | 1828 | 171 | 156 | 5136 | 9693 | 256 | - | 9749 | 185 | 3 | 78 | - | - | 14 | - | 280 | 280 |
| | 81 | 3985 | 600 | 200 | 5130 | 9915 | 297 | - | 10222 | 185 | 3 | 78 | - | - | 14 | - | 280 | 280 | |
| | 82 | 6480 | 840 | 220 | 5020 | 12570 | 294 | - | 12866 | 185 | 3 | 78 | - | - | 14 | - | 280 | 280 | |
| | 83 | 1130 | 940 | 240 | 5520 | 13820 | 292 | - | 14112 | 185 | 3 | 78 | - | - | 14 | - | 280 | 280 | |
| 28. | Gold Regions Test Center, Ft. Greely, Alaska | 80 | 4652 | 485 | - | - | 5137 | 4022 | - | 9159 | 22 | - | - | - | - | 268 | - | 290 | 290 |
| | 81 | 5256 | 177 | - | - | - | 5631 | 4615 | - | 10248 | 22 | - | - | - | - | 268 | - | 290 | 290 |
| | 82 | 5900 | 391 | - | - | - | 5681 | 4617 | - | 10298 | 22 | - | - | - | - | 268 | - | 290 | 290 |
| | 83 | 5709 | 411 | - | - | - | 6210 | 4622 | - | 10812 | 22 | - | - | - | - | 268 | - | 290 | 290 |

1/ Exclusive of Military Personnel and Military Construction.

UNCLASSIFIED

UNCLASSIFIED

Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

| Installation and Location | FY | TOA (\$ in Thousands) | | | | | | PERSONNEL (Man-Years) | | | | | | |
|---------------------------------|----|-----------------------|-------|-----|-----------------------|---------------|-----------------------|-----------------------|---------------|-------|------------|---------------|-------|------|
| | | RDT&E Funds | | | All Other Funds | Mil. Pers. | Mil. Sub- Total | Civil Service | | | Contractor | | | |
| | | Bureau | Army | Non | Other | ROUTE | Other | Paid | From Other | ROUTE | Paid | From Other | Total | |
| 29. | | | | | | | | | | | | | | |
| Combined Arms | 80 | 209 | - | - | 11720 | 11929 | 29 | 11958 | 1 | - | 129 | 2 | - 132 | |
| Test Activity, | 81 | 676 | - | - | 15726 | 16402 | 69 | 16471 | 4 | - | 127 | 4 | - 135 | |
| Ft. Hood, | 82 | 826 | - | - | - | 826 | 69 | 893 | 4 | - | 4 | - | 8 | |
| Texas | 83 | 826 | - | - | - | 826 | 69 | 893 | 4 | - | - | - | 8 | |
| 30. | | | | | | | | | | | | | | |
| Communications | 80 | 1314 | - | - | 115 | 1439 | 989 | - | 2418 | 31 | - | - | 93 | |
| and Electro- | 81 | 1251 | - | - | 180 | 1431 | 1135 | - | 2566 | 31 | - | - | 93 | |
| nics Board, | 82 | 1430 | - | - | 330 | 1760 | 1281 | - | 3061 | 31 | - | - | 101 | |
| Ft. Gordon, | 83 | 1072 | - | - | 180 | 1252 | 1281 | - | 2533 | 31 | - | - | 101 | |
| Georgia | | | | | | | | | | | | | | |
| 31. | | | | | | | | | | | | | | |
| Communications | 80 | 10906 | 10768 | 77 | 6863 | 88594 | 1163 | 132 | 89889 | 903 | 45 | 99 | 186 | 1511 |
| Research and | 81 | 106510 | 10433 | 237 | 6510 | 121690 | 1321 | 235 | 12246 | 937 | 44 | 106 | 282 | 1660 |
| Development | 82 | 112256 | 8548 | 173 | 6111 | 127086 | 1323 | 248 | 128657 | 950 | 42 | 101 | 311 | 1790 |
| Command, | 83 | 139029 | 8997 | 173 | 6336 | 156535 | 1338 | 248 | 156171 | 966 | 42 | 107 | 283 | 1675 |
| Ft. Monmouth, New Jersey | | | | | | | | | | | | | | |

1/ Exclusive of Military Personnel and Military Construction.

UNCLASSIFIED

UNCLASSIFIED

Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

| Installation and Location | FY | TOA (\$ in Thousands) | | | | | | | | | | PERSONNEL (On Years) | | | | | |
|---|----|-----------------------|--------|------|-----------------------|-------|-----------|------------|-------|-------|-----------------------|----------------------|---------------|-------------------------------------|---------------|-------------|-------|
| | | RDTE Funds | | | All Other Funds | | | Mil. Pers. | | | Civil Service Paid | | | Personnel Contract Mil. Pers. | | | |
| | | Mgmt | Bureau | Army | Other | POB | Sub-Funds | Total | RDT | Other | Total | From Army | From Other | From RDT | From Other | From RDT | Other |
| <u>Army Non-Industrial Fund Installations</u> | | | | | | | | | | | | | | | | | |
| 32. | | | | | | | | | | | | | | | | | |
| Computer Systems | 80 | 740 | - | - | - | - | - | 740 | 174 | - | 914 | 18 | - | - | - | 7 | - |
| Command, Ft. Belvoir, Virginia | 81 | 936 | - | - | - | - | - | 936 | 205 | - | 1141 | 24 | - | - | - | 7 | - |
| | 82 | 802 | - | - | - | - | - | 802 | 171 | - | 973 | 21 | - | - | - | 6 | - |
| | 83 | 805 | - | - | - | - | - | 805 | 169 | - | 974 | 21 | - | - | - | 6 | - |
| | | | | | | | | | | | | | | | | | 27 |
| 33. | | | | | | | | | | | | | | | | | |
| Construction Engineering Research Laboratory, Champaign, Illinois | 80 | 6222 | 5170 | 452 | 641 | 12485 | 73 | - | 12558 | 182 | - | - | - | - | - | 4 | - |
| | 81 | 8100 | 4424 | 432 | 539 | 13495 | 127 | - | 13622 | 182 | - | - | - | - | - | 4 | - |
| | 82 | 10142 | 3998 | 390 | 487 | 15017 | 168 | - | 15185 | 182 | - | - | - | - | - | 6 | - |
| | 83 | 9245 | 4317 | 421 | 527 | 14510 | 209 | - | 14719 | 182 | - | - | - | - | - | 8 | - |
| | | | | | | | | | | | | | | | | 10 | - |
| 34. | | | | | | | | | | | | | | | | | 192 |
| Corps of Engineers Headquarters Activities, Washington, DC | 80 | 437 | - | - | - | - | - | 437 | 18 | - | 455 | 11 | - | - | - | 1 | - |
| | 81 | 609 | - | - | - | - | - | 609 | 21 | - | 630 | 11 | - | - | - | 1 | - |
| | 82 | 665 | - | - | - | - | - | 665 | 21 | - | 686 | 11 | - | - | - | 1 | - |
| | 83 | 666 | - | - | - | - | - | 666 | 21 | - | 687 | 11 | - | - | - | 1 | - |

1/ Exclusive of Military Personnel and Military Construction.

UNCLASSIFIED

Section 4 (Cont'd)

UNCLASSIFIED

INSTALLATION ANALYSIS - In-House

| Installation and location | FY | Army Non-Ind- ustrial Fund Installations | TOA (\$ in thousands) | | | | | | PERSONNEL (in thousands) | | | | | | | | |
|--|----|---|-----------------------|-------|--------------|---------------|---------------|------|--------------------------|-------|--------------|--------------------|---------------|-------|-----|-----|------|
| | | | RDTE Funds | | | Mil. Pers. | | | Civil Service Paid | | | Contractor Paid | | | | | |
| | | | Spent | Other | Other DOD | Mil. Pers. | Sub- Total | RDTE | Other | Total | From Army | From RDTE | From Other | Total | | | |
| Highway | 80 | 16138 | 7706 | 2095 | 293 | 26232 | 2641 | - | 28873 | 624 | 11 | - | 5 | 10 | 176 | - | 826 |
| Provding Ground | 81 | 22638 | 9396 | 1050 | 8 | 31092 | 2686 | - | 35778 | 617 | 11 | - | 76 | 10 | 156 | - | 868 |
| Ground, | 82 | 27108 | 10383 | 1100 | 10 | 38601 | 2688 | - | 41289 | 617 | 11 | - | 253 | 10 | 156 | - | 1047 |
| Protecy, Utah | 83 | 31366 | 13570 | 1200 | 12 | 46146 | 2690 | - | 48836 | 617 | 11 | - | 337 | 10 | 156 | - | 1131 |
| W. | 80 | 8882 | 5759 | 1053 | 211 | 15905 | 8512 | 2269 | 26686 | 31 | 38 | 45 | 171 | 15 | 567 | 151 | 1448 |
| Electronic Proving Ground | 81 | 11469 | 5705 | 1043 | 208 | 18425 | 9769 | 2604 | 30748 | 38 | 41 | 48 | 213 | 17 | 567 | 151 | 1215 |
| El. Research & Development | 82 | 12232 | 5696 | 1062 | 208 | 19176 | 9773 | 2606 | 31555 | 38 | 41 | 48 | 213 | 7 | 567 | 151 | 1215 |
| Arizona | 83 | 12965 | 5722 | 1067 | 209 | 19943 | 9784 | 2608 | 32335 | 38 | 41 | 48 | 213 | 7 | 567 | 151 | 1215 |
| 37. | 80 | 9662 | 480 | - | 30 | 10172 | 517 | - | 10689 | 321 | - | - | - | - | - | 34 | 255 |
| Electronics Research and Development | 81 | 8783 | 525 | - | - | 9308 | 607 | - | 9915 | 222 | - | - | - | - | - | 35 | 257 |
| Command Wks, Ad. Opns, Ordnance | 82 | 9893 | 525 | - | - | 10618 | 607 | - | 11075 | 222 | - | - | - | - | - | 35 | 257 |
| | 83 | 10101 | 525 | - | - | 10626 | 607 | - | 11241 | 222 | - | - | - | - | - | 35 | 257 |

17. Exclusion of Military Personnel and Military Construction.

UNCLASSIFIED

Section 6 (Cont'd)

UNCLASSIFIED
INSTALLATION ANALYSIS - IN-HOUSE

| Installation and Location | FY | TWA (\$ in Thousands) | | | | | | | | | | PERSONNEL (in Years) | | | | | | | | | | | | | | |
|---|--|-----------------------|--------|-------|-------|------|-----------------------|-------|------|--------|-------|----------------------|-------|-------|--------------|---------------|-----------------------|------|--------------|---------------|-----------------------|-------------------------------|--------------|---------------|-----------------------|--|
| | | R&D Funds | | | | | All Other Funds | | | | | Mil., Pers. | | | | | Civil Service Paid | | | | | Personnel Contract Rate | | | | |
| | | Mgmt | Bureau | Army | Other | BOD | All | Other | Sub- | Funds | Total | RDT& Prog. | Other | Total | From Army | From Other | From RDT& Prog. | Paid | From Army | From Other | From RDT& Prog. | Paid | From Army | From Other | From RDT& Prog. | |
| <u>Army Non-Industrial Fund Installations</u> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 38. | Electronics Research and Development Command, | 80 | 94883 | 20596 | 2969 | 6166 | 124614 | 601 | - | 125215 | 475 | 23 | 123 | 50 | - | 40 | - | 711 | - | - | - | 728 | - | - | | |
| | | 81 | 82369 | 26450 | 4974 | 6630 | 118523 | 745 | - | 119268 | 492 | 24 | 120 | 40 | - | 43 | - | 737 | - | - | - | 746 | - | - | | |
| | | 82 | 74231 | 25537 | 5034 | 6519 | 111321 | 745 | - | 112066 | 505 | 23 | 121 | 45 | - | 43 | - | 737 | - | - | - | 746 | - | - | | |
| | | 83 | 48217 | 25285 | 5030 | 6765 | 85297 | 745 | - | 86042 | 502 | 21 | 128 | 50 | - | 43 | - | 737 | - | - | - | 746 | - | - | | |
| <u>Pt. Monmouth, New Jersey</u> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 39. | Engineer Topo- graphic Labo- ratory, Pt. Belvoir, Virginia | 80 | 5676 | 2364 | 2548 | - | 10588 | 158 | 146 | 10892 | 135 | 129 | - | - | - | - | - | 7 | 8 | 779 | - | - | 779 | - | - | |
| | | 81 | 6215 | 1963 | 2718 | - | 10896 | 180 | 169 | 11245 | 137 | 127 | - | - | - | - | - | 7 | 8 | 779 | - | - | 779 | - | - | |
| | | 82 | 7118 | 2145 | 2524 | - | 11787 | 181 | 168 | 12136 | 138 | 126 | - | - | - | - | - | 7 | 8 | 779 | - | - | 779 | - | - | |
| | | 83 | 7215 | 2375 | 2550 | - | 12460 | 182 | 167 | 12489 | 136 | 128 | - | - | - | - | - | 7 | 8 | 779 | - | - | 779 | - | - | |
| <u>Waterway Experimental Center, Vicksburg, Mississippi</u> | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 40. | Engineer Waterway Experimental Center, | 80 | 4631 | 5362 | 7236 | 1215 | 18442 | 91 | - | 18533 | 250 | 203 | 224 | 23 | - | 5 | - | 707 | - | - | - | 737 | - | - | | |
| | | 81 | 5393 | 5615 | 7085 | 1144 | 19257 | 106 | - | 19363 | 256 | 208 | 228 | 38 | - | 5 | - | 737 | - | - | - | 740 | - | - | | |
| | | 82 | 7143 | 6174 | 7120 | 1032 | 21469 | 105 | - | 21576 | 255 | 207 | 228 | 43 | - | 5 | - | 736 | - | - | - | 740 | - | - | | |
| | | 83 | 8066 | 6200 | 7200 | 1100 | 22566 | 104 | - | 22670 | 255 | 206 | 227 | 41 | - | 5 | - | 736 | - | - | - | 740 | - | - | | |

1/ Exclusive of Military Personnel and Military Construction.

UNCLASSIFIED

Section 6 (Contd)

UNCLASSIFIED

INSTALATION ANALYSIS - IN-HOUSE

| Installation and Location | FY | TOA (\$ in Thousands) | | | | | | | | | | PERSONNEL (Man-Years) | | | | | | Personnel Mil. Pers. | | | |
|---|------|-----------------------|------|-------|---------------------------------|------|-------|-----------------------|------|-------|-------------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-----------------------|-------------------------|-------|-----|--|
| | | RDFE Funds | | | All Other Funds 1/ DOD | | | Mil. Sub- Total | | | Pers., RDFE Other | GDF Service Paid | | | Contractor Paid | | | Personnel Mil. Pers. | | | |
| | | Bureau | Army | Other | Bureau | Army | Other | Total | RDFE | Other | Total | Mil. | From Army Other | From Other Rate | From Other Rate | From Other Rate | From Other Rate | Mil. | Pers. | | |
| <u>41. Industrial Fund Installations</u> | | | | | | | | | | | | | | | | | | | | | |
| Field | 80 | 1495 | 28 | - | 217 | 1740 | 2087 | - | 3827 | 37 | - | - | - | - | - | - | - | 131 | - | 168 | |
| Artillery | 81 | 1357 | - | - | - | 1157 | 2792 | - | 4149 | 37 | - | - | - | - | - | - | - | 152 | - | 189 | |
| Board, Ft. | 82 | 1644 | - | - | - | 1644 | 2785 | - | 4429 | 37 | - | - | - | - | - | - | - | 152 | - | 189 | |
| Sit, Oklahm, 83 | 1395 | - | - | - | - | 1395 | 2782 | - | 4177 | 37 | - | - | - | - | - | - | - | 152 | - | 189 | |
| <u>42. Foreign Science and Technology Center, Charlottesville, Virginia</u> | | | | | | | | | | | | | | | | | | | | | |
| Foreign | 80 | 81 | - | - | - | 81 | 25 | - | 106 | 5 | - | - | - | - | - | - | - | 1 | - | 6 | |
| Science and Technology | 81 | 85 | - | - | - | 85 | 29 | - | 114 | 5 | - | - | - | - | - | - | - | 1 | - | 6 | |
| Center, | 82 | 106 | - | - | - | 106 | 29 | - | 135 | 5 | - | - | - | - | - | - | - | 1 | - | 6 | |
| Charlottesville, Virginia | 83 | 111 | - | - | - | 111 | 28 | - | 139 | 5 | - | - | - | - | - | - | - | 1 | - | 6 | |
| <u>43. Infantry Board, Ft. Benning, Georgia</u> | | | | | | | | | | | | | | | | | | | | | |
| Infantry | 80 | 1829 | - | - | - | 558 | 2387 | 1809 | - | 4196 | 55 | - | - | - | - | - | - | 114 | - | 169 | |
| Board, | 81 | 1803 | - | - | - | 154 | 1957 | 2236 | - | 4193 | 55 | - | - | - | - | - | - | 122 | - | 177 | |
| Ft. Benning, Georgia | 82 | 1965 | - | - | - | 90 | 2035 | 2230 | - | 4265 | 55 | - | - | - | - | - | - | 122 | - | 177 | |
| | 83 | 2126 | - | - | - | - | 3126 | 2227 | - | 6351 | 55 | - | - | - | - | - | - | 122 | - | 177 | |

1/ Exclusive of Military Personnel and Military Construction.

UNCLASSIFIED

Section 4 (Cont'd)

UNCLASSIFIED
INSTALLATION ANALYSIS - IN-HOUSE

| Installation and Location | FY | TOA (\$ in Thousands) | | | | | | | | | | PERSONNEL (Thou-Years) | | | | | | | | | | |
|---|---|-----------------------|--------|------|-------|-------|-----------------------|------|------|--------|------|------------------------|-------|--------------|---------------|------|-----------------------|---------------|------|--------------|---------------|--------------------|
| | | RDFE Funds | | | | | All Other Funds | | | | | Mil. Pers. | | | | | Civil Service Paid | | | | | Contractor Paid |
| | | Mgmt | Burcas | Army | HOD | Total | Other | Mil. | Sub- | Total | RDFE | Other | Total | From Army | From Other | RDFE | From Army | From Other | RDFE | From Army | From Other | RDFE |
| Army Non-Industrial Fund Installations | | | | | | | | | | | | | | | | | | | | | | |
| 44. | Institute of Surgical Research, Ft. Sam Houston, Texas | 80 | 2268 | - | - | 714 | 2982 | 2506 | - | 54.88 | 78 | - | - | - | - | - | - | - | 150 | - | 229 | |
| | | 81 | 2962 | - | - | 250 | 3152 | 2892 | - | 6044 | 81 | - | - | - | - | - | - | - | 150 | - | 232 | |
| | | 82 | 2629 | - | - | 275 | 2904 | 2879 | - | 5783 | 81 | - | - | - | - | - | - | - | 150 | - | 232 | |
| | | 83 | 2839 | - | - | 275 | 3114 | 2870 | - | 5984 | 81 | - | - | - | - | - | - | - | 150 | - | 232 | |
| 45. | Intelligence and Security Test Board, Ft. Huachuca, Arizona | 80 | 1258 | 29 | - | 290 | 1577 | 1230 | - | 2807 | 21 | - | - | - | - | - | - | - | 77 | - | 98 | |
| | | 81 | 3144 | 10 | - | 349 | 3703 | 1222 | - | 4925 | 17 | - | - | - | - | - | - | - | 66 | - | 83 | |
| | | 82 | 3354 | 10 | - | 500 | 3864 | 1277 | - | 5141 | 24 | - | - | - | - | - | - | - | 69 | - | 93 | |
| | | 83 | 3761 | 11 | - | 1450 | 5222 | 1277 | - | 6499 | 24 | - | - | - | - | - | - | - | 69 | - | 93 | |
| 46. | Kwajalein Missile Range, Marshall Islands | 80 | 61170 | 8875 | 11550 | 30 | 81625 | 754 | - | 82379 | 131 | - | - | - | - | - | - | - | 2617 | 32 | 3126 | |
| | | 81 | 70820 | 7555 | 9355 | 80 | 87810 | 884 | - | 88694 | 131 | - | - | - | - | - | - | - | 2655 | 32 | 3131 | |
| | | 82 | 77675 | 8840 | 12430 | 30 | 98975 | 868 | - | 99843 | 131 | - | - | - | - | - | - | - | 2651 | 32 | 3120 | |
| | | 83 | 82586 | 9715 | 14480 | - | 106781 | 857 | - | 107638 | 131 | - | - | - | - | - | - | - | 2651 | 32 | 3120 | |

1 / Exclusive of Military Personnel and Military Construction.

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Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

| Installation and Location Army Non-Industrial Fund Installations | FY | TOA (\$ in Thousands) | | | | | | PERSONNEL (Man-Years) | | | | | | |
|--|---|-----------------------|------|--------------|----------------------|--------------|------------|-----------------------|---------------|-----------------------|--------------------|---------------|-------|----|
| | | Mgmt Bureau | RDTE | Funds DOD | All Other Army | Other BOD | Mil. Pers. | RDTE | Other RDTE | Civil Service Paid | Contractor Paid | Mil. Pers. | | |
| | | | | | Sub-Funds | Total | RDTE | | Other | RDTE | From RDTE | From Other | Total | |
| 47. | | | | | | | | | | | | | | |
| Letterman Army | 80 | 5137 | 729 | - | 100 | 5966 | 2627 | - | 8593 | 107 | - | 41 | - | |
| Institute of Research, | 81 | 5500 | 400 | - | 150 | 6050 | 3046 | - | 9096 | 125 | - | 41 | - | |
| San Francisco, | 82 | 6235 | 600 | - | 250 | 7085 | 3032 | - | 10117 | 148 | - | 41 | - | |
| California | 83 | 6985 | 600 | - | 250 | 7835 | 3107 | - | 10942 | 148 | - | 41 | - | |
| 48. | Liaison Field Offices, | 80 | 4777 | - | - | - | 4777 | 359 | - | 5136 | 124 | - | 17 | - |
| Various Locations (ARI) | 81 | 5863 | - | - | - | 5863 | 407 | - | 6270 | 124 | - | 17 | - | |
| (AR)83 | 82 | 5065 | - | - | - | 5965 | 410 | - | 6375 | 124 | - | 17 | - | |
| | | 6074 | - | - | - | 6074 | 406 | - | 6480 | 124 | - | 17 | - | |
| 49. | Liaison Offices, Various Locations (DARCOM) | 80 | 734 | - | - | - | 534 | - | 46 | 580 | 15 | - | 4 | 19 |
| | | 81 | 541 | - | - | - | 541 | - | 54 | 595 | 15 | - | 4 | 19 |
| | | 82 | 783 | - | - | - | 783 | - | 54 | 817 | 15 | - | 4 | 19 |
| | | 83 | 896 | - | - | - | 896 | - | 54 | 950 | 15 | - | 4 | 19 |

1/ Exclusive of Military Personnel and Military Construction.

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Section 4 (Cont'd)

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INSTALLATION ANALYSIS - IN-HOUSE

| Installation and Location | FY | TOA (\$ in Thousands) | | | | | | PERSONNEL (Man-Years) | | | | | | Garrison Paid | | |
|---|--|-----------------------|-------|-------|------------------------------|-------------------------------|-------|-----------------------|-------|--------------|-----------------------|---------------|---------------|------------------|------------|-----|
| | | RDT&E Funds | | | All Other Funds DOD | | | Mil. Pers. | | | Civil Service Paid | | | Paid | | |
| | | Sight Bureau | Army | Other | Other DOD | Funds ₁ / Total | RDATE | Other | Total | From Army | From RDT&E | From Other | From RDT&E | From Other | Mil. Pers. | |
| <u>Army Non-Industrial Fund Installations</u> | | | | | | | | | | | | | | | | |
| 50. | Medical Bio-Engineering | 80 | 3819 | 243 | 27 | 4116 | 569 | - | 4685 | 94 | - | - | - | - | 34 | |
| | R&D Laboratory | 81 | 4521 | 137 | - | 4658 | 656 | - | 5314 | 102 | - | - | - | - | 128 | |
| | Ft. Detrick, | 82 | 5207 | 140 | - | 5347 | 653 | - | 6000 | 102 | - | - | - | - | 136 | |
| | Maryland | 83 | 7034 | 140 | - | 7174 | 652 | - | 7826 | 102 | - | - | - | - | 136 | |
| 51. | Medical R&D Command, Ft. Detrick, | 80 | 2334 | - | - | 136 | 2470 | 957 | - | 3427 | 78 | - | 11 | - | 57 | |
| | Maryland | 81 | 4784 | 25 | - | - | 4809 | 1104 | - | 5913 | 81 | - | 11 | - | 57 | |
| | | 82 | 4575 | 25 | - | - | 4600 | 1099 | - | 5699 | 81 | - | 11 | - | 57 | |
| | | 83 | 5219 | 25 | - | - | 5244 | 1096 | - | 6340 | 81 | - | 11 | - | 57 | |
| 52. | Medical Research Institute of Infectious Diseases, Ft. Detrick, Maryland | 80 | 9051 | 313 | - | 14 | 9378 | 5192 | 169 | 14739 | 191 | - | - | 5 | - | 311 |
| | | 81 | 9750 | 250 | - | 10 | 16010 | 5994 | 196 | 16200 | 199 | - | - | 5 | - | 311 |
| | | 82 | 10802 | 275 | - | 13 | 11090 | 5967 | 195 | 17252 | 199 | - | - | 5 | - | 311 |
| | | 83 | 11789 | 275 | - | 13 | 12077 | 5049 | 195 | 18221 | 199 | - | - | 5 | - | 311 |

1/ Exclusive of Military Personnel and Military Construction.

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Section 4 (Cont'd)

UNCLASSIFIED
INSTALLATION ANALYSIS - IN-HOUSE

| Installation and Location | FY | TOA (\$ in Thousands) | | | | | | PERSONNEL (Man-Years) | | | | | |
|---|----|-----------------------|-------|-------|-----------------------|---------------|-----------|-----------------------|-------|-----------------------------------|------------------------------------|------------------------------------|-------|
| | | RDT&E Funds | | | Mil. Pers. | | | Civil Service | | | Contractor Mil. Pers. | | |
| | | Spent | Other | Other | All Other Funds | Sub- Total | RDT& E | Other | Total | Paid From Army RDT& E | Paid From Other RDT& E | Paid From Other RDT& E | Total |
| Army Non Industrial Fund Installations | | | | | | | | | | | | | |
| Mobility R&D | 80 | 13809 | 6996 | 324 | - | 21129 | 1140 | - | 22269 | 750 | 3 | 433 | - |
| Equipment R&D | 81 | 14118 | 9560 | 300 | - | 23978 | 1309 | - | 25287 | 793 | 3 | 422 | - |
| Command, Ft. | 82 | 29741 | 7170 | 300 | - | 28211 | 1310 | - | 29521 | 883 | - | 335 | - |
| Belvoir, Virginia | 83 | 26006 | 7170 | 300 | - | 29876 | 1311 | - | 31187 | 883 | - | 335 | - |
| Sh. | | | | | | | | | | | | | |
| Natick R&D Command | 80 | 21528 | 1292 | 136 | 514 | 23670 | 1489 | 60 | 25219 | 784 | 11 | 18 | - |
| Natick, Massachusetts | 82 | 16147 | 1493 | 212 | 560 | 35601 | 1709 | 82 | 36812 | 768 | 5 | 13 | - |
| Massachusetts | 83 | 11180 | 1582 | 212 | 560 | 36612 | 1709 | 83 | 38204 | 769 | 5 | 12 | - |
| Night vision and Electro-Optics Laboratory | 80 | 1925 | 2751 | 685 | 5019 | 20980 | 480 | - | 21660 | 320 | 13 | 105 | - |
| Belvoir, Virginia | 81 | 14206 | 2300 | 500 | 5000 | 22006 | 551 | - | 22557 | 328 | 9 | 101 | - |
| | | 17320 | 2300 | 500 | 5000 | 25129 | 552 | - | 25681 | 341 | 9 | 88 | - |
| | | 21007 | 2300 | 500 | 5000 | 28807 | 552 | - | 29159 | 355 | 9 | 76 | - |

1/ Exclusive of Military personnel and Military Construction.

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Section 4 (Contd)**INSTALLATION ANALYSIS - IN-HOUSE****UNCLASSIFIED**

| Installation and Location | FY | TOA (\$ in Thousands) | | | | | | CIVIL SERVICE | | | | | | PERSONNEL (Gross Years) | | | | | |
|--|----|-----------------------|--------|------|--------------------|-------|-----------|---------------|-------|-------|-------|-------|-------|-------------------------|-------|-------|-------|-------|-------|
| | | ROUTE Funds | | | All Other Other | | | Mil. Pers. | | | ROUTE | | | ROUTE | | | ROUTE | | |
| | | Mgmt | Bureau | Army | DOD | Other | Sub-Funds | Total | Mil. | Pers. | ROUTE | Other | Total | ROUTE | Other | ROUTE | ROUTE | Other | ROUTE |
| <u>Army Non-Industrial Fund Installations</u> | | | | | | | | | | | | | | | | | | | |
| 56. | | | | | | | | | | | | | | | | | | | |
| Research | 80 | 7938 | 6 | - | 64 | 8008 | 295 | - | 8303 | 193 | - | - | - | - | - | - | 14 | - | 207 |
| Institute for Behavioral Sciences, | 81 | 9287 | 5 | - | - | 9292 | 344 | - | 9636 | 193 | - | - | - | - | - | - | 14 | - | 207 |
| Alexandria, Virginia | 82 | 9570 | 10 | - | - | 9580 | 340 | - | 9920 | 198 | - | - | - | - | - | - | 14 | - | 212 |
| | 83 | 9746 | - | - | - | 9746 | 335 | - | 10081 | 208 | - | - | - | - | - | - | 14 | - | 222 |
| 57. | | | | | | | | | | | | | | | | | | | |
| Research Institute of Environmental Medicine, | 80 | 4092 | 94 | 17 | 3 | 4226 | 1331 | - | 5557 | 95 | - | - | - | - | - | - | 80 | - | 175 |
| Natick, Massachusetts | 81 | 3656 | 60 | 25 | - | 3741 | 1536 | - | 5277 | 95 | - | - | - | - | - | - | 80 | - | 175 |
| | 82 | 4244 | 60 | 25 | - | 4329 | 1530 | - | 5859 | 95 | - | - | - | - | - | - | 80 | - | 175 |
| | 83 | 3058 | 60 | 25 | - | 3143 | 1525 | - | 4668 | 95 | - | - | - | - | - | - | 80 | - | 175 |
| 58. | | | | | | | | | | | | | | | | | | | |
| Research and Technology Laboratory, Moffat Field, California | 80 | 16033 | 4118 | 1816 | 20 | 21987 | 252 | - | 22239 | 536 | - | - | - | - | - | - | 17 | - | 553 |
| | 81 | 18971 | 4883 | 2049 | - | 25903 | 288 | - | 26191 | 526 | - | - | - | - | - | - | 17 | - | 543 |
| | 82 | 20295 | 3660 | 519 | - | 24474 | 289 | - | 24763 | 526 | - | - | - | - | - | - | 17 | - | 543 |
| | 83 | 21225 | 4026 | 571 | - | 25822 | 290 | - | 26112 | 527 | - | - | - | - | - | - | 17 | - | 544 |

1/ Exclusive of Military Personnel and Military Construction.

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Section 6 (Contd)

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INSTALLATION ANALYSIS - IN-HOUSE

| Installation and Location FY | Army Non In- dustrial Fund Installations | TOA (\$ in Thousands) | | | | | | Civil Service | | | | | | Personnel (Man-years) | | | | | | | |
|---------------------------------------|--|-----------------------|-------|-------|-----------------------|------|-------|-----------------------------|-------|-------|-------------------------|-------|-------|-----------------------|-------|-------|-------------------------------|------------------------|---------------|-----------------------------|-------|
| | | RDT&E Funds | | | All Other Funds | | | Mil. Pers. Sub- Total | | | RDT&E; Army Other | | | RDT&E | | | Paid From Army RDT&E | | | Contracted To MIL. Firms | |
| | | Mgmt | Other | Other | Prod | Prod | Prod | RDT&E | Other | Total | RDT&E | Other | Total | RDT&E | Other | Total | RDT&E | From Other RDT&E | Funds Work | Other | Total |
| 59. | Signal Warfare | 80 | 17296 | 1667 | 1701? | 2776 | 38560 | 360 | 421 | 99330 | 70 | 33 | 8 | 138 | 24 | 28 | 301 | | | | |
| | Laboratory, | 81 | 17035 | 6022 | 20964 | 2218 | 46239 | 512 | 496 | 45247 | 79 | 35 | 7 | 157 | 29 | 29 | 316 | | | | |
| 60. | Vint Hill | 82 | 19378 | 4172 | 28664 | 3842 | 66056 | 511 | 406 | 67063 | 79 | 35 | 7 | 202 | 29 | 29 | 381 | | | | |
| | Farms | 83 | 17932 | 2128 | 33997 | 6564 | 78601 | 511 | 697 | 79609 | 79 | 35 | 7 | 233 | 29 | 29 | 417 | | | | |
| 61. | Standard- ization Group, | 80 | 16 | - | - | 16 | 29 | - | 45 | - | - | - | - | - | - | - | 2 | - | 2 | - | 2 |
| | Australia | 81 | 16 | - | - | 16 | 29 | - | 45 | - | - | - | - | - | - | - | 2 | - | 2 | - | 2 |
| | Canada | 82 | 36 | - | - | 36 | 29 | - | 63 | - | - | - | - | - | - | - | 2 | - | 2 | - | 2 |
| | | 83 | 42 | - | - | 42 | 29 | - | 71 | - | - | - | - | - | - | - | 2 | - | 2 | - | 2 |
| | | | | | | | | | | | | | | | | | | | | | |

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Section 4 (Contd)

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INSTALLATION ANALYSIS - IN-HOUSE

| Installation and Location | FY | Non- Army Non-In- dustrial Federal Installations | TOA (\$ in thousands) | | | | | | CIVIL SERVICE | | | | | | PERSONNEL (in thousands) | | | | | |
|---------------------------------|--------------------------------------|---|-----------------------|--------|------|--------------|-------|-------|---------------|-------------|-------|-------|-------|-------|--------------------------|------|-------|------|-------|------------|
| | | | RDFE Funds | | | MIL. Pers. | | | RDFE | | | Paid | | | From | | | Paid | | |
| | | | Mgmt | Bureau | Army | All Other | Other | Total | Funds | 1/ Funds | Total | Elite | Other | Total | RDFE | Army | Other | From | Other | MIL. Pers. |
| 62. | Standard- ization Group, | 80 | - | - | - | - | - | - | 120 | 55 | - | 175 | 1 | - | - | - | - | - | - | - |
| Germany | 82 | 164 | - | - | - | - | - | - | 164 | 56 | - | 220 | 1 | - | - | - | - | - | 3 | 4 |
| | 83 | 181 | - | - | - | - | - | - | 181 | 55 | - | 236 | 1 | - | - | - | - | - | 3 | 4 |
| 63. | Standard- ization Group, | 80 | 1025 | - | - | - | - | - | 1025 | 156 | - | 1181 | 15 | - | - | - | - | - | 10 | 25 |
| United Kingdom | 81 | 1214 | - | - | - | - | - | - | 1214 | 180 | - | 1396 | 15 | - | - | - | - | - | 10 | 25 |
| | 82 | 1549 | - | - | - | - | - | - | 1549 | 180 | - | 1729 | 15 | - | - | - | - | - | 10 | 25 |
| | 83 | 1693 | - | - | - | - | - | - | 1693 | 179 | - | 1872 | 15 | - | - | - | - | - | 10 | 25 |
| 64. | Tank Auto- motive R&D Command, | 80 | 13040 | 11649 | 4323 | - | - | - | 18512 | 528 | - | 19040 | 401 | 112 | - | - | - | - | 35 | 48 |
| Michigan, Warren, | 81 | 15683 | 1098 | 1320 | - | - | - | - | 18101 | 676 | - | 18777 | 661 | 49 | - | - | - | - | 30 | 49 |
| | 82 | 17864 | 1365 | 363 | - | - | - | - | 19572 | 676 | - | 20248 | 487 | 35 | - | - | - | - | 39 | 61 |
| | 83 | 18736 | 491 | - | - | - | - | - | 19227 | 676 | - | 19903 | 499 | 9 | - | - | - | - | 39 | 547 |

1/ Exclusive of Military personnel and military construction.

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Section 4 (Contd)

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INSTALLATION ANALYSIS - IN-HOUSE

| Installation and Location | FY | TOA (\$ in Thousands) | | | | | | PERSONNEL (Man-Years) | | | | | | | | | |
|---|-----|-----------------------|--------|------|-----------------------|-------|-----|-----------------------|-------|-------|----------------------|-----------------------|---------------|--------------------|-------|---------------|-------|
| | | RDT&E Funds | | | All Other Funds | | | Mil. Pers. | | | Civ. Service Paid | | | Contractor Paid | | | |
| | | Joint | Bureau | Army | Other | Army | Don | RDT&E | Other | Total | RDT&E | From Army Other | From Other | RDT&E | Funds | Work Other | Total |
| Army Non-Industrial Fund Installations | 65. | | | | | | | | | | | | | | | | |
| Test and Evaluation | 80 | 17177 | 159 | - | - | 17336 | 72 | 1417 | 18825 | 390 | - | 1 | 38 | - | 5 | 94 | 528 |
| Command Headquarters, | 81 | 16288 | 159 | - | - | 16667 | 82 | 1627 | 18156 | 401 | - | 16 | 52 | - | 5 | 94 | 566 |
| Aberdeen, Maryland | 82 | 19105 | - | - | - | 19105 | 83 | 1628 | 20816 | 401 | - | 14 | 78 | - | 5 | 94 | 592 |
| | 83 | 19249 | - | - | - | 19249 | 82 | 1628 | 20959 | 401 | - | 14 | 78 | - | 5 | 94 | 592 |
| | | | | | | | | | | | | | | | | | |
| Tri-Service Tacical Communications Systems (TRI-TAC), Joint Test Element, Ft. Huachuca, Arizona | 66. | 1304 | - | 2188 | - | 3692 | 168 | - | 3860 | 54 | - | - | - | - | 11 | - | 65 |
| | 81 | 1592 | - | 2730 | - | 4222 | 193 | - | 4515 | 54 | - | - | - | - | 11 | - | 65 |
| | 82 | 1660 | - | 3018 | - | 4678 | 194 | - | 4872 | 54 | - | - | - | - | 11 | - | 65 |
| | 83 | 1781 | - | 3325 | - | 5106 | 193 | - | 5299 | 54 | - | - | - | - | 11 | - | 65 |

1/ Exclusive of Military Personnel and Military Construction.

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Section 4 (Contd)

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INSTALLATION ANALYSIS - IN-HOUSE

| Installation and location | FY | TOA (\$ in thousands) | | | | | | CIVIL SERVICE | | | | | | PERSONNEL (Person-Years) | | | | | | |
|---|---|-----------------------|--------|------|-----------------------|-----|-------|---------------|-------|-------|-----------------------|-------|-------|--------------------------------|-------|-------|--|-------|-------|-----|
| | | RDFE Funds | | | All Other Funds | | | Mil. Pers. | | | From Army ROUTE | | | Paid From Other ROUTE | | | Contractor Paid From Funds Work | | | |
| | | Mgmt | Bureau | Army | Other | DOD | Total | RDFE | Other | Total | RDFE | Other | Total | RDFE | Other | Total | RDFE | Other | Total | |
| <u>Installations</u> | | | | | | | | | | | | | | | | | | | | |
| 67. | Tri-Service | 80 | 6040 | - | - | - | 6040 | 312 | - | 6352 | 112 | - | - | - | - | - | 21 | - | 133 | |
| Tactical | 81 | 7048 | - | - | - | - | 7048 | 358 | - | 7406 | 112 | - | - | - | - | - | 21 | - | 133 | |
| Communications | 82 | 7266 | - | - | - | - | 7266 | 358 | - | 7624 | 112 | - | - | - | - | - | 21 | - | 133 | |
| Systems | 83 | 7487 | - | - | - | - | 7487 | 359 | - | 7846 | 112 | - | - | - | - | - | 21 | - | 133 | |
| (TRI-TAC), Ft. Monmouth, New Jersey | | | | | | | | | | | | | | | | | | | | |
| 68. | Tropic Test Center, Panama Canal Zone, Panama | 80 | 2764 | 43 | - | 17 | 2824 | 1152 | - | 3976 | 77 | 1 | 1 | 1 | 1 | 1 | 2 | 77 | - | 163 |
| | | 81 | 2923 | 48 | - | 55 | 3026 | 1322 | - | 4348 | 76 | 1 | 1 | 1 | 1 | 1 | 3 | 77 | - | 162 |
| | | 82 | 3181 | 40 | - | 37 | 3238 | 1310 | - | 4568 | 77 | 1 | 1 | 1 | 1 | 1 | 2 | 76 | - | 165 |
| | | 83 | 3474 | 41 | - | 34 | 3549 | 1298 | - | 4847 | 78 | 1 | 1 | 1 | 1 | 1 | 2 | 75 | - | 162 |
| 69. | Walter Reed Army Institute of Research, Washington, DC | 80 | 17606 | 527 | 284 | 131 | 18568 | 7528 | 569 | 26645 | 400 | - | 24 | 28 | - | 461 | 34 | 937 | | |
| | | 81 | 25724 | 190 | 56 | 3 | 25973 | 8762 | 656 | 35391 | 453 | - | 25 | 25 | - | 454 | 34 | 994 | | |
| | | 82 | 26231 | 190 | 56 | 3 | 26480 | 8791 | 653 | 35924 | 476 | - | 25 | 25 | - | 458 | 34 | 1021 | | |
| | | 83 | 29137 | 190 | 56 | 3 | 29386 | 8764 | 652 | 38802 | 476 | - | 25 | 25 | - | 458 | 34 | 1021 | | |

1/ Exclusive of Military Personnel and Military Construction.

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Section 4 (Contd)

INSTALLATION ANALYSIS - IN-HOUSE

| Installation and Location | FY | TOA (\$ in Thousands) | | | | | | PERSONNEL (Man-Years) | | | | | | |
|---|---------------------|-----------------------|-----------|-----------------|-----------------------|----------|-----------|-----------------------|----------|-----------|-----------------------|-------|-------|-------|
| | | RDT&E Funds | | | Mil. Pers. | | | Civil Service | | | Contractor Mil. Pers. | | | |
| | | RDT&E | Other | Other Bureau | Mil. Sub- Funds | Total | RDT&E | Other | Total | RDT&E | From Other | Paid | Total | |
| Army Non-Industrial Fund Installations | 70 | | | | | | | | | | | | | |
| White Sands | 80 | 114,314 | 20,777 | 60,64 | 9,833 | 150,968 | 1,214,8 | - | 16,311,6 | 2,155 | 222 | 27 | 104,3 | |
| Missile Range, 81 | 139,615 | 21,996 | 62,50 | 10,240 | 178,101 | 140,41 | - | 19,214,2 | 2,228 | 230 | 27 | 104,4 | - | |
| Las Cruces, | 82 | 159,474 | 26,588 | 75,63 | 12,372 | 20,599,7 | 14,128 | - | 22,012,5 | 2,229 | 230 | 27 | 104,1 | - |
| New Mexico | 83 | 168,194 | 27,186 | 77,24 | 12,613 | 21,571,7 | 14,227 | - | 22,994,4 | 2,196 | 227 | 27 | 102,7 | - |
| | 71 | | | | | | | | | | | | | |
| Yuma Proving Ground, Yuma, Arizona | 80 | 198,69 | 128,73 | 1334 | 2149 | 36,225 | 5,750 | - | 41,975 | 823 | - | 10 | 110 | - |
| | 81 | 297,11 | 16,100 | 1340 | 1913 | 4,906,4 | 5,643 | - | 54,507 | 833 | - | 10 | 176 | - |
| | 82 | 308,39 | 15,047 | 26,40 | 3019 | 51,345 | 5,445 | - | 56,790 | 833 | - | 10 | 200 | - |
| | 83 | 350,23 | 15,973 | 2176 | 887 | 54,059 | 5,450 | - | 59,509 | 833 | - | 10 | 200 | - |
| | Subtotal Army | 80 | 778,519 | 174,570 | 63,803 | 131,728 | 114,862,0 | 10,527,8 | 7526 | 1,261,384 | 1,537,0 | 859 | 36,96 | 4,572 |
| | Non-Industrial Fund | 81 | 9,111,21 | 18,391,6 | 6,536,4 | 14,315,5 | 13,335,6 | 11,984,3 | 8815 | 1,462,214 | 1,551,2 | 801 | 3815 | 5,033 |
| | | 82 | 10,187,90 | 18,552,9 | 7,666,64 | 13,548,9 | 14,159,81 | 12,044,4 | 8543 | 1,544,968 | 1,548,4 | 776 | 3660 | 5,416 |
| | | 83 | 10,851,29 | 18,507,9 | 8,318,7 | 14,575,7 | 14,993,32 | 12,026,6 | 8538 | 1,628,156 | 1,546,8 | 746 | 3641 | 5,499 |
| | Total, in-House | 80 | 988,917 | 268,126 | 86,307 | 1,456,70 | 1,488,980 | 111,214 | 7837 | 1,608,031 | 2,281,0 | 2081 | 3872 | 4,660 |
| | | 81 | 11,587,15 | 274,720 | 88,831 | 151,439 | 167,375 | 12,670,7 | 8900 | 1,809,312 | 2,303,8 | 2066 | 4,092 | 5,117 |
| | | 82 | 12,570,17 | 286,050 | 96,565 | 144,320 | 178,393 | 12,263,69 | 8627 | 1,918,928 | 2,313,3 | 1983 | 3899 | 5,451 |
| | | 83 | 13,117,36 | 281,643 | 102,715 | 156,345 | 187,439 | 12,561,11 | 9019 | 200,906,9 | 2,312,4 | 1959 | 3930 | 5,536 |

1/ Exclusive of Military Personnel and Military Construction.

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DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY
ANALYSIS OF REIMBURSABLE PROGRAM
(\$ in Thousands)

Section 5

| | FY 1980 ACTUAL | FY 1981 ESTIMATE | FY 1982 ESTIMATE |
|--|-------------------|---------------------|---------------------|
| <u>Customer</u> | | | |
| Department of the Army | 486,289 | 420,128 | 426,622 |
| <u>Other Department of Defense Components</u> | | | |
| Department of the Navy | 34,296 | 39,160 | 14,562 |
| Department of the Air Force | 38,907 | 51,041 | 66,000 |
| US Marine Corps | 4,496 | 10,255 | 5,642 |
| Other Defense Agencies | 19,398 | 12,820 | 13,249 |
| <u>Subtotal</u> | 583,386 | 533,804 | 526,075 |
| <u>Activities Outside Department of Defense</u> | | | |
| Department of Commerce | 542 | 600 | 450 |
| Department of Energy | 2,433 | 4,553 | 3,157 |
| Department of Treasury | 433 | 400 | 200 |
| Department of Health and Human Services | 380 | 375 | 700 |
| Department of Transportation | 2,680 | 411 | 902 |
| National Aeronautical and Space Administration | 871 | 1,353 | 1,689 |
| Department of Interior | 403 | 620 | 710 |
| Environmental Protection Agency | 435 | 100 | 150 |
| Trust Funds | 436 | 321 | 225 |
| Other | 6,448 | 7,078 | 6,667 |
| Nonfederal Sources | 10,248 | 12,141 | 11,575 |
| <u>Subtotal</u> | 25,309 | 28,496 | 26,425 |
| <u>TOTAL</u> | 608,695 | 562,300 | 552,500 |

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Section 5 (Contd)

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ANALYSIS OF REIMBURSABLE PROGRAM

DESCRIPTION OF REIMBURSAELE WORK

A large percentage of the Research, Development, Test and Evaluation reimbursable program is for intra Army (both inter/intra-appropriation) work or services performed under automatic reimbursement procedures. Research, Development, Test and Evaluation efforts also support requests received from other Federal and Nonfederal agencies on a reimbursable basis. Major areas of support include:

- a. Navy - Share of advancing blade concept helicopter high speed test program; Joint services small arms program; Joint cruise missile project; Fuel filter evaluation; Testing magazine protection enhancement program; Navy aron plate, decontamination-gas membrane; Armored combat vehicle technology support; Joint test element, Tri-Service Tactical Communications Systems Office; Mine neutralization studies; Surfzone transition analysis.
- b. Air Force - Effect of munitions on hardened structures; Installation security systems; 105mm blank rounds; Anti-aircraft blast dissemination technology; Aerosol displacement profil test; Environmental control unit; Joint microwave landing system; Advanced fence sensor development program; Support to MINUTEMAN II and III firing missions, Advanced ballistic reentry system tests; Space detection and tracking system; Modifications to the ALTAIR radar; Develop litter patient decontamination shower; Evaluation of Air Force clothing; Signature calibration and thermal control verification; Threat models for intercontinental ballistic missile/sea launched ballistic missile geometry simulations; Side looking airborne radar imagery; Radar tracking; Global positioning systems tests; Infrared flyover services; Air Force aron plate.
- c. Marine Corps - Support of the joint test element, Tri-Service Tactical Communications Systems Office; 100 gallon per minute fuel monitoring assembly; Tactical field fuel dispensing system; Solar power source program; 10 kilowatt generator engineering service; Mule program support; Medical field refrigerator modification; Studies of heat stress in carrier based personnel wearing chemical warfare clothing; Calibration in support of WEAPONER devices; Department of the Navy share of survey of special foreign activities; 5 inch semi-active laser.
- d. Other Defense Agencies:
 - (1) Defense Advanced Research Projects Agency - No tail rotor program; NAVSTAR ground positioning system; High altitude large optics program; Rail gun advanced indirect fire system.
 - (2) Defense Mapping Agency - Photogrammetric exploitation; Cartographic exploitation; Geodetic and geophysical support; Data base and data bank; Products and services.

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Section 5 (Cont'd)

ANALYSIS OF REIMBURSABLE PROGRAM

- (3) Defense Nuclear Agency - Scientific services program; Nuclear weapons effects; SILO test program; Shallow buried structures test; Ground motion studies; Material modeling; Grant development; Federal Republic of Germany road cratering tests.
- e. Department of Energy - Conversion of cellulose to glucose; SEALED nuclear waste disposal program closure studies; Grout studies; Bochhole waste; Micro fracturing; Coal mine shafts; Food processing; Food waste recovery system.
- f. National Aeronautical and Space Administration - Tape scoring; Developmental testing of electronic warfare equipment; Space shuttle program.
- g. Nonfederal Sources - Canadian drone; Development of antitank 2 warhead for the Multiple Launched Rocket System in the Federal Republic of Germany; Treatment at the Institute of Surgical Research burn center; Fox tunnel, Yukon River bridge project; Passive seismic investigation; oil creek project.

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Section 6

DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY
FEDERAL CONTRACT RESEARCH CENTERS

Federal Contract Research Centers (FCRCs) are those organizations primarily engaged in providing specialized technical and scientific effort necessary to supplement that available in the Army. The centers listed are those sponsored by the Department of Defense which provide technical and management services in the management of the Army's programs. These centers provide independent, specialized, technical and scientific capabilities to supplement that available within the Department of the Army.

FCRCs have been established to permit more organizational flexibility, and greater availability of technical and scientific personnel. These research centers possess unique skills and capabilities resulting from the development of highly specialized professional staff intimately acquainted with the many facets of the Army's mission. This capability results from long association and practical experience with the Army. The in-depth background provides the Army with a ready capability that cannot be immediately obtained elsewhere. Long association with the Department of Defense enables these centers to tailor these research centers to be compatible with Army interests, procedures and operational requirements. While the Army no longer sponsors an FCRC it will be necessary to continue research and development efforts at FCRCs sponsored by the Department of Defense and the other services. These research and development contracts provide timely and innovative products and techniques appropriate to current and long-range Army missions and plans.

The requested FY 1987 FCRC requirements reflect an increase of \$6.4 million when comparing FY 1982 to FY 1987.

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UNCLASSIFIED**Section 6 (Contd)****FEDERAL CONTRACT RESEARCH CENTERS**

The following summary identifies the estimated work, excluding subcontract effort, to be placed with each Federal Contract Research Center (FCRC) from the Research, Development, Test and Evaluation, Army appropriation and from the other Army appropriations.

**SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
(\$ in Thousands)**

| FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT | FY 1980 ACTUAL | FY 1981 ESTIMATE | FY 1982 ESTIMATE | FY 1983 ESTIMATE |
|---|---------------------------|-----------------------------|-----------------------------|-----------------------------|
| AEROSPACE CORPORATION | | | | |
| Research, Development, Test and Evaluation, Army | | | | |
| 6.21.05.A Materials | 20 | 200 | - | - |
| 6.22.07.A Laser Weapons Technology | 25 | 80 | 100 | 100 |
| 6.26.18.A Ballistics Technology | 30 | 50 | 60 | 80 |
| 6.37.30.A Tactical Surveillance System | 582 | 408 | 482 | 528 |
| 6.37.45.A Tactical Electronic Surveillance Systems | 388 | 459 | 535 | 594 |
| 6.47.40.A Tactical Surveillance System | 485 | 357 | 428 | 462 |
| 6.47.45.A Tactical Electronic Surveillance Systems | 291 | 255 | 321 | 396 |
| Total R&TE, Army | 1,821 | 1,809 | 1,926 | 2,160 |
| Total Aerospace Corporation | 1,821 | 1,809 | 1,926 | 2,160 |

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Section 6 (Cont'd)

FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT

(\\$ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

AEROSPACE CORPORATION (Continued)

Remarks: The expertise and facilities of Aerospace Corporation are required to support the Army in FY 1982-1983 as follows:

1. Laser Weapons Technology. Aerospace will provide experimental and theoretical analysis of pulse chemical lasers. Requirements cover areas of basic research and determination of rate data and theoretical analysis of pulse chemical lasers. The Directed Energy Directorate of the Army Missile Laboratory has responsibility for the development of High Energy Laser Weapon Systems for the Army which includes the pulse chemical laser work. Program requirements call for completion of demonstration model during the 1983-1985 timeframe; therefore, data is needed immediately. Aerospace has the capability required to perform this effort in an expeditious manner.
2. Ballistics Technology.
 - a. Aerospace Corporation has personnel who have developed and utilized computer models of the muzzle flow field. Additionally, at Aerospace there is a significant computational gasdynamics capability which has developed in response to Air Force requirements regarding analysis of rocket and space systems. The requested program will take advantage of the expertise available at Aerospace.
 - b. In FY 1980, the flow over a two-dimensional muzzle brake was computed using the three-dimensional, time dependent finite element code. Preliminary analysis of the geometry of a computationally acceptable three-dimensional brake was initiated. In FY 1981, computation of the prior year idealized three-dimensional brake will begin. Comparison with parallel experiments at Ballistics Research Laboratory will be performed. Consideration will begin on a geometry of a field muzzle brake. In FY 1982, computation of the flow through the first baffle chamber of a field muzzle brake will be conducted. In FY 1983 and outyears, computation of the flow through both the first and second chambers of a double baffle muzzle brake will be conducted. Muzzle brake efficiencies will be determined and compared with experiment. Consideration will be given to the computation of the muzzle blast propagation away from the region of the muzzle brake toward the crew members of the weapon. A scheme to couple the three-dimensional finite element code to a more efficient one or two-dimensional shock fitting model will be addressed. Following this, the problem of muzzle flow through a realistic geometry muzzle brake and propagation of the muzzle blast to the gun crew area will be finalized.

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Section 6 (Contd)

FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
(\$ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

AEROSPACE CORPORATION (Continued)

3. Tactical Surveillance/Electronic Surveillance Systems. The Army has tactical requirements that current, proposed, and new space systems can satisfy if proper trade-off studies are performed and if equipment, communications, personnel and interfaces necessary to integrate the functions to these systems with other, more conventional systems are identified and acquired. Aerospace Corporation provides General Systems Engineering and Technical Direction (GSE/TD) support to the Air Force in the management of complex space and missile systems. This work encompasses a wide spectrum of technical activities from initiation of a system concept through development, testing, and operational evaluation. Specifically, activities include advanced mission planning, definition of system requirements and detailed breakdown of segment specifications and overall systems engineering. In FY 1982, Aerospace efforts will be provided as follows:

- a. General System Support will be provided. Studies, both conceptual and hardware oriented, will be identified, scoped and performed according to established milestones. Aerospace will help develop a comprehensive system concept defining the functions, equipment, communications, personnel and interfaces necessary to integrate space system support into ground force operations. Long range planning and briefing support, both personnel and material will be provided.
- b. General System Engineering/Technical Direction in support of simulation development and documentation and in support of other contractor efforts to be defined will be provided.
- c. Aerospace will modify and exercise several simulation programs to evaluate the support of potential advanced space systems to the tactical commander.
- d. Aerospace will provide technical support and perform system studies in support of Army field evaluations.
- e. Aerospace will provide technical support and perform system studies in support of Army evaluation on the need for Army unique space systems capabilities.

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Section 6 (Contd)

FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
 (\$ in Thousands)

| FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT | FY 1980 ACTUAL | FY 1981 ESTIMATE | FY 1982 ESTIMATE | FY 1983 ESTIMATE |
|--|-------------------|---------------------|---------------------|---------------------|
| LINCOLN LABORATORY, MASSACHUSETTS INSTITUTE OF TECHNOLOGY | | | | |
| Research, Development, Test and Evaluation, Army | | | | |
| 6.27.26.A Army Support to Defense Advanced Research Project Agency (DARPA) HOWLS | 1,500 * | - | - | - |
| 6.33.04.A Ballistic Missile Advanced Technology Program | 8,767 | 9,545 | 10,949 | 11,252 |
| 6.37.06.A IFF Developments (NATO) | 2,000 ** | 1,800 ** | 1,700 ** | 1,300 ** |
| 6.53.01.A Kwajalein Missile Range (KMR) | 3,535 | 3,785 | 4,560 | 4,760 |
| 6.58.04.A White Sands Missile Range (WSMR) | 1,015 | 1,000 | 1,200 | 1,300 |
| Total R&D, Army | 13,317 | 14,330 | 16,709 | 17,312 |
| Total R&D, Army Included in DARPA Ceiling | 1,500 | - | - | - |
| Total R&D, Army Included in Air Force Ceiling | 2,000 | 1,800 | 1,700 | 1,300 |
| Total Lincoln Laboratory, Massachusetts Institute of Technology | 16,817 | 16,130 | 18,409 | 18,612 |
| Subcontract effort excluded from this amount | 11,146 | 15,459 | 16,619 | 17,600 |

* Program funded by Army but supported with Advanced Research Project Agency (ARPA) ceiling.

** Program funded by Army but supported with Air Force ceiling.

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UNCLASSIFIED**Section 6 (Contd)****FEDERAL CONTRACT RESEARCH CENTERS****SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
(\$ in Thousands)****FEDERAL CONTRACT RESEARCH CENTER/APROPRIATION/PROGRAM ELEMENT****LINCOLN LABORATORY, MASSACHUSETTS INSTITUTE OF TECHNOLOGY (Continued)****Remarks:**

Lincoln Laboratory technical effort is required to support the Army during FY 1982-1983 as follows:

1. Ballistic Missile Defense Advanced Technology Program: Lincoln Laboratory provides a unique research and development capability not duplicated in industry. They also provide an objective capability to evaluate industrial efforts. Lincoln Laboratory allows for high risk and high pay-off developments needed to advance the state-of-the-art. In prior years, Lincoln Laboratory has performed research effort in reentry discrimination, exoatmospheric discrimination and designation, large band digital signal processing, operation of the Army Optical Station at Kwajalein Missile Range, and requirements definition for advanced concepts in terminal and midcourse regimes. Effort will continue in the areas of discrimination techniques, signal processing, and advance radar components. Millimeter Wave instrumentation radar and monolithic MMIC receiver wave transceiver module efforts will be completed in FY 1982. Specific areas of effort include:

- a. Discrimination Technology: Discrimination technology effort includes work in reentry discrimination, bulk discrimination, exoatmospheric designation and discrimination engineering and radar data analysis and interpretation. Discrimination techniques utilizing millimeter wavelength radars and passive optics will be evaluated.
- b. Radar Technology: Radar technology effort includes work in millimeter-wave components, laser components, large bandwidth digital signal processing, and surface wave technology. It also includes the procurement and installation of a millimeter wave instrumentation radar at Kwajalein for data collection.
- c. Optics Technology: Optics technology effort includes: Operation of the Army Optical Station at Kwajalein Missile Range, which includes two passive optical sensors and one laser sensor, obtaining signature measurements on targets-of-opportunity and conducting handover experiments between these sensors and the radars at Kwajalein Missile Range; and reduction and analysis of Army Optical Station data.

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FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
(\$ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

LINCOLN LABORATORY, MASSACHUSETTS INSTITUTE OF TECHNOLOGY (Continued)

- d. Terminal and Midcourse Defense Technology: Effort includes continuation of terminal and midcourse defense technology requirements definition for advanced concepts; with specific efforts in assessing the Low Altitude Defense Non-Nuclear Defense Requirements for endo defense and the Forward Acquisition System Requirements in the exo region.
2. Identification Friend-or-Foe (IFF) Developments (NATO). Lincoln Laboratory efforts are required for continuation of technical support to the US Army Electronics Research and Development Command related to the Army portion of the Joint Service Effort to design the NATO Identification System for both air defense and battlefield IFF applications. Previous analytic, experimental and crossboard efforts have resulted in a strawman design for the system which is the US baseline for negotiations with NATO.
3. Kwajalein Missile Range (KMR). Continued Lincoln Laboratory support is required as outlined below:
- a. The Kiernan Recentry Measurements Site radars which were developed by Lincoln Laboratory under Advanced Research Project's Agency sponsorship, and by direction of the Director, Defense Research and Engineering, were transferred to the Kwajalein Missile Range Directorate of the Ballistic Missile Defense Systems Command in 1968 to support the National Range mission.
- b. The US possesses no other comparable facility capable of collecting exatmospheric data and recording missile reentry phenomena than the Kiernan Recentry Measurement Site radar complex. The data collected by these instruments must be of the highest quality. High confidence in these test data leads to high confidence in missile development programs and ultimately in national strategic forces capabilities.

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FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
(\$ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

LINCOLN LABORATORY, MASSACHUSETTS INSTITUTE OF TECHNOLOGY (Continued)

c. Lincoln Laboratory serves as Scientific Director of the Kierman Reentry Measurements Site at Kwajalein Missile Range, and they are considered predominant exports for this particular task. They provide the technical management of the overall Kierman Reentry Measurements Site instrumentation system which includes three very unique and complex radar sensors and their associated display, control, and recording equipments in support of mission operations. Additionally, they perform the offsite mission test planning, radar systems engineering, and data reduction and reporting.

d. Their overall efforts are pursuant to the objective of providing an integrated operation with multiple sensors whose total spectrum of capabilities will allow the collection of data for both strategic offensive and defensive weapon system development and which will function as an extremely flexible test bed for experiments on Advanced ballistic Missile system techniques. The instrumentation system at the Kierman Reentry Measurements Site is a continually evolving one due to the emphasis on using, in real time, the capabilities of the individual sensors to maximize the total effectiveness for data collection.

e. In summary, Lincoln Laboratory effort includes direction of all activities required to assure readiness and optimum coverage of a mission by the Kierman Reentry Measurements Site radars; also, upgrades to the radars to meet the changing and unique mission requirements generated by range user programs; to improve data quality and system reliability are responsibilities of Lincoln Laboratory system engineers and analysts. Kwajalein Missile Range does not have the in-house capability to perform this effort. If the effort were sought from other contractual sources, the expertise gained at Lincoln Laboratory and nurtured during the last 15 years at government expense would be sacrificed and an unacceptable degradation in the quality and efficiency of support provided testing programs would occur.

4. White Sands Missile Range (WSMR). Continued Lincoln Laboratory support is required for the High Energy Laser Systems Test Facility which is being developed in response to congressional direction that a single DOD Tri-service High Energy Laser Systems Test Facility be established at the White Sands Missile Range. The instrumentation for the High

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FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
(\$ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

LINCOLN LABORATORY, MASSACHUSETTS INSTITUTE OF TECHNOLOGY (continued)

Energy Laser Systems Test Facility consists of sensing, data handling, data transmission, data processing, data analysis, command and control, beam diagnostics and communications equipment designed for integrated test and evaluation of High Energy Laser systems. The High Energy Laser Systems Test Facility in conjunction with the White Sands Missile Range Test Complex will provide a flexible capability for demonstration of High Energy Laser and other directed energy beam systems early in the development cycle. Integrated testing at White Sands Missile Range will permit cost effective capability evaluation and data base accumulation for accelerated development and reduced system life cycle costs. Lincoln Laboratory provides consulting services and technical expertise for education and analysis of High Energy Laser test facility instrumentation in the conceptual design of High Energy Laser Systems Test Facility instrumentation.

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FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
(\$ in Thousands)

| FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT | FY 1980 ACTUAL | FY 1981 ESTIMATE | FY 1982 | | FY 1983 ESTIMATE |
|--|-------------------|---------------------|---------------------|---------------------|---------------------|
| | | | FY 1981 ESTIMATE | FY 1982 ESTIMATE | |
| MITRE CORPORATION | | | | | |
| Research, Development, Test and Evaluation, Army | | | | | |
| 6.22.02.A Aircraft Avionics Technology | 360 | 300 | 360 | 360 | 360 |
| 6.26.03.A Large Calibre and Nuclear Technology | - | - | 290 | 290 | 330 |
| 6.27.01.A Communications Technology | 791 | 966 | 890 | 1,320 | - |
| 6.27.03.A Combat Surveillance Target Acquisition/ID | 44 | - | 300 | 318 | - |
| 6.37.07.A Communications Development | 550 | 732 | 112 | - | - |
| 6.37.13.A Communications Development (PLRS-TRIPS hybrid) | - | - | 600 | 880 | - |
| 6.37.45.A Tactical Electronic Support Systems | - | 480 | 480 | 480 | 480 |
| 6.37.49.A Tactical Vulnerability Reduction | 310 | - | - | - | - |
| 6.47.01.A Communications Engineering Development | 400 | 546 | 570 | 625 | - |
| 6.47.12.A Technical Data Systems Interoperability | 846 | 836 | 1,123 | 2,740 | - |
| 6.47.45.A Tactical FOT C&C Support (OFTA) | 210 | 300 | 470 | 505 | - |
| 6.47.50.A Tactical Electronic F/W Systems | 290 | - | - | - | - |
| 6.47.79.A JINTACCS | 1,855 | 2,623 | 2,920 | 2,104 | - |
| Total RDTE, Army | 5,656 | 6,783 | 8,115 | 9,662 | - |

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Section 6 (Cont'd)

UNCLASSIFIED**FEDERAL CONTRACT RESEARCH CENTERS****SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
(\$ in Thousands)**

| FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT | FY 1980 ACTUAL | FY 1981 | FY 1982 | FY 1983 |
|---|-----------------------|-----------------|-----------------|-----------------|
| | | ESTIMATE | ESTIMATE | ESTIMATE |
| MITRE CORPORATION (continued) | | | | |
| Operations and Maintenance, Army | | | | |
| 202399 GENTAC CCIS. | 460 | 497 | 567 | 607 |
| 202399 USAFEUR CCTS Implementation | 950 | 1,100 | 1,200 | 1,200 |
| 208015 Army Command and Control Master Plan (AC2MP) | - | - | 400 | 750 |
| 193111 US Army Communications Command (AC2MP & ABIC) | - | 200 | - | - |
| 393111 US Army Communications Command (Transition Communication Planning) | - | - | 90 | 210 |
| 393145 US Army Communications Command and Control Technical Support | 630 | 675 | 857 | 995 |
| 195701 US Army Communications Command (ARBITS/WITS) | 760 | 720 | 720 | 762 |
| Total Operations and Maintenance, Army | 2,800 | 3,192 | 3,814 | 4,519 |
| Total MITRE Corporation | 8,456 | 9,975 | 11,979 | 14,181 |

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Section 6 (Contd)

FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
(\$ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

Remarks: MITRE Corporation expertise and technical support is required by the Army as follows:

1. Aircraft Avionics Technology.

- a. MITRE will assist the US Army Aviation Research and Development Command in defining helicopter C³ system requirements and in developing a methodology for identifying alternative configurations which satisfy the requirements for the post 1990 timeframe. At present, there is no methodology for determining future C³ system architectural needs for Army aviation. Such a methodology is needed to provide a tie between the operational needs and processes and the hardware and software systems that support those needs. The ongoing MITRE effort provides such a methodology and can lead to the development of an overall C³ system architecture for aviation.
- b. In general, the MITRE method produces a detailed description of operational processes, time factors and information exchanges within and external to aviation elements. With this, capability gaps and system deficiencies can be exposed, and comparisons between current systems and proposed alternatives can be carried out. A synthesis of future C³ architecture can then be carried out using advanced technology to redress system deficiencies and to meet future requirements.
- c. During FY 1980, MITRE conducted work which began defining the time and event sequences and the information flow sequences of a typical anti-armor mission. The FY 1981 effort completed the anti-armor mission and extended the analysis across the other Army aircraft missions, i.e., logistics, reconnaissance, medevac. From this data base the methodology for defining the aviation C³ architecture was developed and candidate architectures were described.
- d. During FY 1982 and FY 1983 MITRE will concentrate on system architecture investigations, computer simulation, and laboratory breadboard of testbed elements as delineated in the following task areas:

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UNCLASSIFIED**Section 6 (Cont'd)****FEDERAL CONTRACT RESEARCH CENTERS****SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT**
(\$ in Thousands)**FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT****MITRE CORPORATION (Continued)**

(1) Development of Aviation Architecture. During FY 1982, the methodology development would be completed for determining the relationship between the mission operational needs and the future C3 architecture. This methodology is needed not only for the development of future candidate architectures but also to help identify the technology areas of thrusts that should be pursued by the US Army Aviation Research and Development Command. Candidate aviation C3 concepts such as the Executive Control Subordinate System. The architecture of the Executive Control Subordinate System is currently in the definition stage and information generated by the aviation architecture would better define the interfaces between aviation elements and other Executive Control Subordinate System elements.

(2) C³ Technology Assessment. During FY 1982 and FY 1983 this effort would be conducted in conjunction with the development of a candidate architecture. It is necessary to conduct this task so as to ensure the technology of 1990-2000, which would be used by the elements of the Executive Control Subordinate System architecture, would also be incorporated into the aviation architecture. Recent technology surveys will be reviewed with focus on addressing any C3 short falls of the current helicopter C³ architecture and to meet the architectural requirements of the 1990's. Technologies would be identified with maximum payoff and minimum risk.

2. Large Calibre and Nuclear Technology. MITRE will provide analytical, modeling and general technical support to the Large Calibre Weapon Systems Laboratory, of the US Army Armament Research and Development Command, to assist the Large Calibre Weapon Systems Laboratory in the evaluation and development of advanced weapon systems such as Enhanced Self Propelled Artillery Weapons System. Other programs requiring assistance include guided projectiles and Improved Sensing Munitions. MITRE, for example, will provide a survivability module for the Enhanced Self Propelled Artillery Weapons System computer model used by the Large Calibre Weapon Systems Laboratory in order to investigate the advantages and disadvantages of tactics such as "shoot and scoot" and the dispersed battery: this may include the modification of MITRE's Stochastic Counter Artillery Model, if appropriate. In support of the Large Calibre Weapon Systems Laboratory guided projectile and Improved Sensing Munitions program, MITRE will provide and articulate the Command, Control, Communications, Intelligence data base for operational performance evaluations, as well as provide analytical support concerning the Command, Control, Communications, Intelligence issues as they develop.

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FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
(\$ in thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

3. Communications Technology. MITRE will provide system research, analysis, and engineering support as follows:

a. They will provide specialist system design and engineering support to the Communications Research and Development Command in the identification, definition, and analysis of advanced system concepts and information handling techniques to include consideration of measures for assuring continuity of operations and acceptable levels of system survivability. The MITRE work will provide the basis for follow-on exploratory development and/or advanced development programs pursued to experimentally verify the feasibility and adequacy of proposed C3 system structures. During FY 1980, MITRE's work involved the initial identification and outline description of promising Army tactical C3 system structures, potential information handling techniques, and advanced user input-output facilities. This initial effort will provide a foundation for the follow-on work on the definition of advanced system concepts.

b. They will provide specialist technical support to the Communications Research and Development Command in the application of automatic data processing to tactical spectrum management and engineering; specific efforts will include development of compatibility and vulnerability analysis models to address emissions in the electromagnetic part of the spectrum with special emphasis on the analysis of spread spectrum system impact. In 1979, the Communications Research and Development Command working in conjunction with the Electromagnetic Compatibility Analysis Center initiated an exploratory development program to consider alternative system solutions for the effective management of the Army's use of the frequency spectrum. The total program will address decentralization of spectrum management and engineering functions, integration of terrestrial and satellite management, evolution and integration with the TRI-TAC tactical communications control facilities, interoperability with the future Army all source analysis center, generation and electronic distribution of communications-Electronics Operating Instructions, and interaction with Joint, NATO, and allied systems. A modern spectrum management system is vital to the effective deployment and operation of the future automated Army command, control, and communications systems. Initial MITRE effort involved the definition and analysis of a functional description of an integrated benchmark Automated Battlefield Spectrum Management and Engineering System. The information aspect of the temporal, physical, electrical and procedural interfaces have been determined. Tables were prepared to portray the information required by the Spectrum Management System from other tactical systems.

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FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT
(\$ in Thousands)

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MITRE CORPORATION (Cont'd)

c. MITRE personnel will participate as members of the Battlefield Information Distribution System working group in the detailed planning for and the conduct of the various phases of the corps level experiment. They will work with the US Army Training and Doctrine Command and US Army Materiel Development and Readiness Command representatives to determine the benefits of applying Battlefield Information Distribution System technology to closed loop systems which require data distribution capabilities. The Communications Research and Development Command, acting for the US Army Materiel Development and Readiness Command and in conjunction with the US Army Training and Doctrine Command, is presently involved in a program to refine the specifications and establish the potential for a digital data communications system for Army use on the battlefield. Specific applications include the transfer to digital data from sensors to command center computers and among division and Corps command center computers to demonstrate tactical operational concepts such as the Corps Information Flow concept, expected to be implemented in the mid to late 1980's. This project was initiated in order to determine whether certain critical operational needs, difficult to satisfy by the classic point-to-point network, could be served more efficiently by an all-digital network. Implementation of intrusion proof fiber optic cable into the Battlefield Information Distribution System tested experiment will be investigated. MITRE has been assisting the Communications Research and Development Command by active participation in this corps experiment working group sessions. This included preparation of draft plans for Phase I and II of the experiment which have been successfully implemented. Phase III which is currently underway and the preparation of a long range tentative plan to cover FY 1981-1985 activity. In addition, MITRE has assisted the Communications Research and Development Command in an evaluation and assessment of Phase I and II results as a collateral task. MITRE provides on call, assessments of the characteristics and capabilities of various hardware candidates for investigation in concert with the corps experiment. This type tasking includes assistance to the Communications Research and Development Command in the preparation of Statements of Work, proposal evaluation and contract performance monitoring for procurement actions associated with the experiment, including the low cost Packet Radio Effort. Prior to FY 1980, work was being done under the title, "Tactical Army Distribution (TADS) Experiment". The project number remained the same. In FY 1980 MITRE produced a 5 year Master Plan for the Fort Bragg Experiment. This documentation provides detailed technical areas for investigation, and first cut funding requirements that will allow Army decision makers to select scenarios and topics that

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are of most interest. MITRE is also preparing an overall Communications Research and Development Command C³ White Paper to more clearly focus on the Army C3 problem and their potential solution. The main thrust of MITRE efforts during FY 1982-1983 will be the preparation of specific plans for the utilization and evaluation of the corps level testbed resources at Fort Bragg including a master long range schedule. MITRE personnel will work closely with the Communications Research and Development Command, US Army Materiel Development and Readiness Command, US Army Training and Doctrine Command, XVIII Airborne Corps, and Defense Advanced Research Project Agency representatives in the preparation of these documents. In addition, MITRE will determine a feasible method of integrating associated developmental testing (e.g., Field Artillery, Army Air Defense, Beta and HELBAT) with the corps level experiment.

d. MITRE will investigate the conceptual design of the Army Battlefield Information Distribution System network using results from FY 1979/1980 basic research in the area of development of a set of computer programs as a vehicle for development of algorithms for large, dynamic data networks. These algorithms, design principles/concepts will be investigated with the Network Management Algorithm Vehicle to investigate the performance of the Battlefield Information Distribution System network operating under a large set of control architectures. MITRE will also investigate generic system level architectures such as slotted/non-slotted, synchronous/asynchronous TDMA, as well as control concepts for fully distributed, partially distributed and centralized networks to establish a basis for trade-off analysis. Realistic military scenarios will be used as a framework for the Battlefield Information Distribution System network design concepts. MITRE will implement the investigation with emphasis on general areas such as evaluation of a variety of distributed and routing / low control algorithms for Army tactical environment; determination of the required frequency of automatic network reconfiguration actions in mobile tactical scenario; evaluation of the performance of different channel access modes (e.g., pure ALOHA, carrier sense, reservation, etc.) and of single versus multiple channel operation (including various data rates), in tactical mobile operations in typical terrain; and, quantification of the tradeoff between increased computational capability of networks elements and decreased overhead traffic levels between network elements. The main thrust of MITRE efforts in FY 1982 and FY 1983 will be completion of an investigation of the hardware and software aspects of digital network management and control via analysis, and computer modeling/simulation. MITRE will provide technical management support, program formulation, planning, coordination with related activities, systems analysis, and engineering. This includes assistance with the VHSTC task with academic research tasks related to Network Management, and the low Cost Packet Radio task.

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4. Combat Surveillance Target Acquisition/Identification. MITRE support is required for analysis and research to provide detailed requirements and concepts for advanced Intelligence, Surveillance, Target Acquisition Systems and to guide Combat Surveillance and Target Acquisition developmental efforts for the next ten to twenty years.

- a. The principal purposes of this task are to summarize the factors that drive Army Intelligence, Surveillance, Target Acquisition requirements, and identify the major issues which impact the formulation of an Intelligence, Surveillance, Target Acquisition architecture. The timeframe considered shall be the latter 1980's.
- b. The contractor shall generally describe planned Army tactics for fighting a central European war, considering both conventional and tactical nuclear conflicts. Korean and Middle Eastern scenarios shall be addressed secondarily, from the viewpoint of how tactics in these areas would differ from those planned for Europe.
- c. The contractor shall summarize the Army's Intelligence, Surveillance, Target Acquisition requirements, relating them to the planned tactics. The Intelligence, Surveillance, Target Acquisition needs described shall include not only the sensing functions, but also the links to distribute Intelligence, Surveillance, Target Acquisition information. Variations in scenarios or tactics which strongly affect the Intelligence, Surveillance, Target Acquisition requirements shall be identified. Coordination of this effort shall be accomplished with the US Army Training and Doctrine Headquarters and appropriate user agencies.
- d. Intelligence, Surveillance, Target Acquisition equipments that are presently fielded or are in development by the services shall be catalogued and briefly described. The developing agency shall be identified, and the performance of each system shall be summarized. The contractor shall briefly assess the adequacy of these equipments to meet Army Intelligence, Surveillance, Target Acquisition requirements, and shall identify the major issues requiring resolution where a clear assessment is not possible. Recommendations for follow-on analyses to resolve these issues shall be provided. A framework shall be developed for investigations into relevant physical sciences and technology, including the current technology base and forecasts for its expansion.

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e. Results of the above efforts shall be furnished in a report, which shall include a thorough bibliography of recent (past 5-10 years) publications on the topics described above. Additionally, the contractor shall complete a reference library of documents for delivery to the government, comprising the major recent publications in the areas of Intelligence, Surveillance, Target Acquisition architecture requirements, design, and analysis.

5. Communications Development. MITRE efforts are required for support of the Local Distribution Fiber Optic Cable System. The long-term objective of the Army fiber optic communications program is to field substantially improved cable systems as part of an overall modernization of tactical communications systems. Fiber optic technology promises much higher capacity as well as increased reliability and mobility relative to conventional metallic cable. In addition, Electro Magnetic Interference, power Frequency Interference, and crosstalk are essentially eliminated. There is also the potential that the increased reliability and reduced logistic requirements will result in significant economies on a life cycle cost basis. As an extension of the long haul program, MITRE has begun work on a Local Distribution Fiber Optic Cable System for the Army during 4th Quarter FY 1980. This effort was initiated under a temporary arrangement through Air Force. The Army plans to move the local distribution program into 6.4 by 1982. In order to meet this deadline an immediate 6.3 program must be initiated and MITRE support is essential to meeting this schedule. The MITRE role in this project will be that of System Research and Planning. In this role MITRE will provide both general and specific systems research on advanced fiber optic systems. This assistance will include the areas of application analysis, design tradeoff and life cycle cost analysis, specification and evaluation of optical components, preparation of demonstration systems and field support. Specific tasks to be performed by MITRE include local distribution cable analysis, design tradeoff and life cycle cost analysis, specification of optical components, preparation of demonstration system, field support of demonstrations and evaluation.

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6. Communications Development (Position Location Reporting System - Joint Tactical Information Distribution System Hybrid). The Army has initiated the Position Location Reporting System - Joint Tactical Information Distribution System Hybrid program to provide a data distribution and position location system for the Army battlefield in the late 1980's. A Letter of Agreement and an Operational and Organizational Concept have been approved on this System. A Study Report provided by the Secretary of Defense approval and outlined an accelerated acquisition activity based upon product improving already developed Joint Tactical Information Distribution System and Position Location Reporting System terminals. MITRE was the hybrid system engineer during the conceptual development of the Hybrid System. MITRE's support to the hybrid in prior years was primarily associated with the Joint Tactical Information Distribution System portion of the hybrid. In carrying out this task MITRE's efforts also were concerned with the overall Hybrid design and testbed planning. MITRE helped to define the testbed configuration and contractor roles in the testbed. MITRE provided technical inputs to the position Location Reporting System net management design approach and simulation. The effort in FY 1982 and FY 1983 will expand on the previous effort to include increased emphasis on the whole Hybrid System rather than just the Joint Tactical Information Distribution System portion which is covered under Army's Joint Tactical Information Distribution System Joint Project Office Project. MITRE's previous involvement in the Hybrid conceptual work has provided it with an extensive background knowledge of the Army's operational requirements and it is in a good position to translate these into technical design requirements. In addition, information needed to perform this function is sensitive from a planning and funding standpoint. This type of information can be released to MITRE because its Federal Contract Research Center status.

7. Tactical Electronic Support Systems. MITRE efforts are needed for conduct of research aimed at improving Intelligence, Surveillance, Target Acquisition/Electronic Warfare processing techniques to support the Army tactical commander's needs for battlefield management, operations planning, enemy intentions, and targeting information. MITRE will conduct research, analysis, and experiments involving the automated processing, fusion, and display of mover, shooter, and emitter data for the purpose of developing efficient, automated techniques for identifying and locating critical nodes. The application of mover and emitter processing schemes in being or under development will be assessed for incorporation into the Technical Control and Analysis Center (Division) as a component of an interim All Source Analysis System. In addition, MITRE will design and support acquisition and installation of the Intelligence Processing Laboratory. The Intelligence Processing Laboratory will provide researchers with the facilities for conducting research and experimentation aimed at improving Intelligence, surveillance, Target Acquisition/Electronic Warfare processing techniques.

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8. Communications Engineering Development. MITRE technical support is required for the Fiber Optics Transmission System (Long Haul) full-scale development program, to include system engineering, contract monitoring, economic analysis, reliability and maintainability analysis, and fiber optic component and interface equipment evaluation. In addition, MITRE will continue to conduct analyses and long-range planning toward the definition of cost effective application of fiber optic technology. The MITRE role is that of System Engineer for the fiber optic development effort. In this role, MITRE will continue to provide both general and specific system engineering activity assistance, some of which is a continuation of those tasks initiated in FY 1980. This assistance will include continuation of the design trade-off studies, life cycle cost analysis in support of the design trade-off studies, component evaluation, and nuclear hardening effects study. A multi-discipline support group capable of executing both technical and economical studies is required. They should be conducted by professional people experienced in military operations, communications and fiber optics. Such support is not available within this command due to current limitation in manpower. MITRE personnel have unique qualifications for the program planning and implementation of an engineering development program for Army long haul fiber optic programs. MITRE has been involved in the development of several fiber optic demonstration systems for potential military application under an Air Force sponsored Fiber Optics Technology Applications program.

9. Tactical Data Systems Interoperability. MITRE technical support is required as follows:

- a. MITRE will provide system engineering and transition analysis support for the Army's work to specify the current baseline and near-term/mid-term transition of the Army Command, Control, and Communications systems employed at all Army tactical echelons. The Center for Systems Engineering and Integration at the Communications R&D Command serves as the Army's tactical Command, Control, and Communications System Engineer. The goal of the Center is to establish a cohesive, well-engineered, affordable, and evolutionary system design which effectively integrates the component fire control, air defense, Electronic Warfare/Intelligence, command information, combat service support, and communications facilities into a single overall system to provide for effective command and control of Army tactical forces at all echelons. A balanced near-term and far-term system design and engineering program is required to achieve those objectives; i.e., exploratory development efforts are

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required to derive and analyze the future goal-type system designs toward which the Army should evolve and near-term oriented system engineering efforts are required to address the integration of the equipments and systems that are now in development and production. MITRE will provide specialist system design and engineering support to the Communications R&D Command (Center for Systems Engineering and Integration) in the development of force element oriented system level specifications which technically define the Army's Command, Control, and Communications systems at each major organizational element of the Army; e.g., an Infantry Division. The work will include transition analyses to determine the best means for introducing the emerging new equipments and subsystems into the Army's tactical Command, Control, and Communications systems and the definition of the interoperability standards needed to integrate the tactical Command, Control, and Communications facilities into a single cohesive system and to interface the Army systems with the appropriate systems of the other military services and the US allies. MITRE support for the Center for Systems Engineering and Integration system engineering work associated with the design and integration of the Army's Position Location Reporting System - Joint Tactical Information Distribution System Hybrid System will be continued during FY 1982 and FY 1983.

b. MITRE will provide system engineering and transition analysis support for the Army's work to define a near-term and follow-on full implementation for the Army's Executive Control Subordinate System Concept for distribution of information among the functional elements of the Army's Command, Control, and Communications system. In FY 1980, the Army's System Architect, established an Executive Control Subordinate System Concept as their architecture for identifying the information needs/flows that must be accommodated between the Army Control Systems (i.e., fire control, air defense, combat service support, operations, and Electronic Warfare/Intelligence) and between the Commander and each of those Control Systems. The Center for Systems Engineering and Integration has the responsibility to determine the extent to which the identified information flow requirements can be satisfied in the near-term, the technical solution for the near-term, and an evolutionary or transitional approach to eventually provide for the full satisfaction of those objectives. In FY 1982-1983, MITRE will provide specialist system design, analysis, and engineering support to the Communications R&D Command (Center for Systems Engineering and Integration) in the development of the system design that will be established to satisfy the Executive Control

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Subordinate System requirements. This effort will involve the definition of a near-term solution which can be fielded early through use of the Army's Tactical Computer System and Tactical Computer Terminal equipments. The effort will include specification of interfaces, software expansion/modification, and system level procedures needed for near term fielding; follow-on efforts will be devoted to determining a proposed far-term implementation for the Executive Control Subordinate System concept and the transition path which will be followed to achieve that goal.

10. Tactical Electronic Warfare Intelligence Command and Control Support (BETA). In 1977 the BETA Project was established by OSD to demonstrate the feasibility and utility of prompt coupling of target acquisition sensor data into tactical combat situation displays and fire power systems. In June 1980 Congress requested that the role of the BETA Joint Project Office be expanded to take on the development of operational system prototype derivatives of the BETA Test Bed, namely, the Army's All Source Analysis System and the Air Force's Tactical Fusion Division. The goal is to have the implementation of the operational systems under contract by October 1981, with an Initial Operational Capability planned for June 1984. To meet the requirements imposed by Congress and OSD, a program involving four parallel efforts is being developed. For FY 1981 the objectives are as follows:

- a. To complete the evaluation of the initial Test Bed capability and identify improvements that should be included both in further evaluation of the Test Bed and in the procurement of the operational systems.
- b. To complete the procurement cycle for acquiring an implementation contractor for the operational system, beginning with the preparation of a Request for Proposal and ending with a contract award by 1 October 1982.
- c. To utilize the BETA Test Bed in a COMUS Command Post Execution in June 1981 and a European Field Training Execution in September 1981 for the purpose of learning to use the capabilities in an operational environment and identifying additional future improvements for the operational systems.

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d. To generate a dynamic tactical simulation capability for supporting Command Post Executions and for evaluating system capabilities.

MITRE will work in direct support of the Director, BETA/A11 Source Analysis System/Tactical Fusion Division Joint Project Office. Work plans and changes will be coordinated with the Director to assure they are matched to current priorities. MITRE personnel may be collocated with other Joint Project Office personnel at selected government facilities. MITRE will support the Joint Project Office in carrying out the four parallel efforts of its program which are BETA Test Bed Evaluation, Acquisition of A11 Source Analysis System/Tactical Fusion Division Operational Capabilities, Test Bed Demonstrations and Evaluations and Tactical Simulator Development.

11. Joint Interoperability of Tactical and Control Systems. MITRE technical support is required in two areas as follows:

a. MITRE will provide system research, analysis, planning, engineering, and technical management support to the Army Test Unit in all phases of its mission in support of the Joint Interoperability of Tactical and Control Systems testing program. This support will include requirements analysis, analysis and evaluation of current and programmed capabilities to insure maximum effectiveness and interoperability configuration management, and test planning, conduct, data collection and analysis. MITRE will support the Army Test Unit by:

- (1) Assisting in the preparation for and support of the Joint Interoperability of Tactical and Control Systems Compatibility and Interface test objectives, plans, procedures, conduct, data collection and analysis of Air Operations, Operations Control, and Fire Support Test Segments.
- (2) Providing the technical support necessary to insure timely execution and completion of assigned Joint Interoperability of Tactical and Control Systems Compatibility and Interface testing to include support to Intelligence and Air Operations Operational Effectiveness Demonstration.

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- (3) Defining the performance, design and test requirements of the Army Test Unit Interoperability Test Center configurations for the various Joint Interoperability of Tactical and Control Systems test segments. In addition, MITRE will assist the Army Test Unit with the Technical Controller functions associated with the Fort Monmouth Interoperability Test Center and its associated remote sites.
- (4) Continuation of support to the Executive Test Center at Fort Leavenworth. This will require that MITRE maintain an additional site at Fort Leavenworth during FY 1981.
- (5) Assisting the Army Test Unit in developing requirements for, and implementing Joint Interoperability of Tactical and Control Systems test support hardware and software including that necessary for on-line test support, data collection and analysis, and Joint Interoperability of Tactical and Control Systems message preparation aids.
- (6) Analyzing and evaluating Compatibility and Interface tests to identify problems, correct deficiencies, recommend solutions, and plans for retesting.
- (7) Accomplishing user Joint Interoperability of Tactical and Control Systems message interoperability requirements analyses and development of related engineering and software design criteria.
- b. MITRE will provide system research, analysis, planning, engineering, and technical management support to the Center for Systems Engineering and Integration in all phases of its Army Command, Control, and Communications, Joint Interoperability of Tactical and Control Systems-related, systems engineering, architecture, and concept/design activities. This support will include requirements analysis and evaluation of current and planned capabilities to assure maximum effectiveness, interoperability, configuration management and test support. MITRE will support the Center for Systems Engineering and Integration by:

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- (1) Accomplishing user interoperability requirements analyses and development of related engineering design criteria.
- (2) Developing system interoperability validation methodology and test planning.
- (3) Supporting NATO Rationalization, Standardization, and Interoperability planning and plan implementation and execution.

12. Central Army Group Command Control Information System.

a. MITRE provides systems engineering support to the US Army Element, Central Army Group Command Control Information System in determining the Headquarters, Central Army Group Command Control Information System requirements, systems characteristics and required capabilities directed towards the implementation of a Central Army Group Command and Control architecture for the current period through 1985. MITRE is also assisting the US Army Element in defining the Central Army Europe wide Command and Control architecture which will determine the Allied Command expertise required to assist in the analysis and technical action leading to the refinement of the Command and Control system concept for Headquarters, Central Army Group and the planning and implementation of the concept. MITRE provides a team consisting of analysts and technical specialists to work closely with, and under the direction of, the Central Army Group Command Control Information System Element. This team is located at the Central Army Group Headquarters, and as necessary, draws upon the support of specialists located at MITRE offices in the United States.

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b. Principal MITRE FY 1980 activities at the Central Army Group included: (1) support to the Central Army Group required inputs to the Supreme Headquarters Allied Powers Europe Command and Control Requirements Analysis Tasking; (2) the preliminary analysis and documentation of the Central Army Group display requirements; (3) support during exercise CRESTED EAGLE 80 for the design, implementation and evaluation of a display distribution experiment using the Strategic War Headquarters Closed Circuit Television system; and (4) the establishment of a microprocessor based test bed to experiment with graphical display presentation and develop analytical tools or predictive analysis.

c. During FY 1981, MITRE is assisting the Command Control Information System/Command and Control group in the integration of automatic data processing terminals into the Peace and War Headquarters operations. With respect to this effort, MITRE will provide overall planning guidance and assist in staff orientation. Also, development of the initial limited automatic data processing capabilities into an operational system will require MITRE assistance for the derivation and documentation of software specifications for applications programs. Continued MITRE support will be provided to the Command and Control Requirements Analysis effort; also, MITRE efforts will continue to refine and interpret in terms of meaningful graphical presentation the Central Army Group display requirements and investigate predictive analytical techniques ultimately resulting in software specifications for the Central Army Group Command and Control system. Additionally, MITRE will develop suitable engineering options for a viable Leapfrog concept (Alternate War Headquarters). It is anticipated that MITRE will prepare in the 1981 time frame working papers/technical information letters covering the following items: (1) Automatic data processing integration with the Central Army Group Command and Control, concepts of operations/procedures; (2) graphical display requirements specifications; (3) software specifications for the Central Army Group Command and Control applications; (4) planning and results of the liaison officer experiments; (5) possible hardware solutions for Alternate War Headquarters; and, (6) other topics concerning various aspects of the Central Army Group Command and Control system implementation necessary to document urgent problems/solutions.

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- d. In FY 1982-1983 MITRE will support the Command and Control Information System/Command and Control Group principally in the following areas: (1) continued integration of Command and Control subsystems at the Static War Headquarters as they become available, e.g., CAMPS, SCARS II terminals, and optimization of procedures for integration of all systems; (2) development of software specifications for Peace and Static War Headquarters; and, (3) planning and development of operational concepts in preparation for the dedicated Central Army Group Fourth Allied Tactical Air Force computer installation at the new Ruppertsweiler II Joint Static War Headquarters facility.
13. United States Army Europe Command and Control Information System Implementation.
- a. MITRE is providing system engineering support to the United States Army Europe Command and Control Information System Project Office in the analysis and actions leading to the development and implementation of the US Army Europe Command and Control Information System. This support includes communication system design, technical support in the development of automatic data processing systems, test bed development and implementation, exercise planning and evaluation, technical monitoring of subcontractor support activities and documentation leading to final system implementation. MITRE provides a team consisting of analysts and technical specialists to work closely with, and under the direction of, the US Army Europe Command and Control Information System Project Office. This team is located at the US Army Europe Headquarters, and as necessary, draws upon the support of specialists located at MITRE offices in the United States. MITRE personnel will be assigned to Major Support Command Headquarters, as required, in the performance of their activities. The US Army Europe Command and Control Information System Program objectives are to develop a system which will: (1) provide an effective system for the US Army Europe to perform its combat service support mission during wartime; (2) to achieve the best structure for wartime readiness during peacetime; and, (3) to develop an effective means of transitioning to the US Army Europe wartime NATO support role from its peacetime posture.

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b. During FY 1980 the first module of the Operations Subsystem, the Force Tracking System became operational and its effectiveness was demonstrated in a series of exercises. Another major program milestone was achieved with the publication of the initial set of the US Army Europe standard data elements to support interoperability with other systems. The FY 1981 program is based upon development and expanded testing of the various prototype subsystems. A major milestone in FY 1981 is the first demonstration of key attributes of the Command level system.

c. In FY 1982, MITRE will assist in the integration on newly acquired automatic data processing systems of software and hardware and the evaluation of test bed and exercise operations. A major milestone will be the demonstration of the prototype system during CRESTED EAGLE '82. Based upon the results of these tests, functional descriptions will be finalized for subsystem module and integration will begin of operating levels subsystems and command level system modules. The analysis of alternate communications network will be completed and formalized for submission to the 5th Signal Command. MITRE will assist in the review for selection of subcontractors to implement the design. A major task will be the development of formal evaluation procedure for the US Army Europe Command and Control Information System.

d. During FY 1983 efforts initiated in FY 1982 will be continued. Functional descriptions will be completed and support will be provided for the final system components. MITRE will prepare plans for system test, training and overall maintenance of the system. A major milestone will be the use of the integrated system in WINTER '83. Technical support will be provided in monitoring contractor implementation of the final Command and Control Information System configuration.

14. Army Command and Control Master Plan.

a. The Army has recently promulgated the Army Command and Control Master Plan to provide a uniform understanding of total system requirements and to develop an integrated program plan for the development of command and control capabilities. The Army Command and Control Master Plan is to be a "living document" (updated annually) to guide the programs acquisition process and decisions on fielding new command and control capabilities over a five-year planning horizon.

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b. MITRE will provide technical support to the Command, Control, Communications, and Intelligence Directorate of the Combined Arms Combat Development Activity, Fort Leavenworth, Kansas. This support will consist of systems research and analysis to support the annual update of the Army Command and Control Master Plan. The initial effort will include documenting a methodology for annual updates which will allow this process to consider information requirements and command and control capabilities within a context of doctrine and tactics (using several levels of conflict expressed as Situations, Actions, and Missions) as well as tactical organizational structure. The methodology is to explicitly address system interface requirements. Integrated baseline system capabilities will be assessed to determine shortfalls in functional capabilities. In addition, longer term research and analysis will be carried out based upon the concept of a unified methodology for the Command, Control, Communications, and Intelligence, as developed by the Combined Arms Combat Development Activity. This will require the determination of an acceptable set of essential elements of analysis, which will include effectiveness-oriented quantitative measures such as measures of effectiveness, measures of performance, and measures of support; and a detailed description of the proposed analytic technique to be applied. Candidate force-on-force models capable of relating Command, Control, Communications, and Intelligence systems capabilities to force effectiveness will be identified and used (singly and jointly, as appropriate) on an interim basis. This overall research effort will be directed in the long run towards the development of a force-on-force simulation "kernel" by means of which individual models or subprograms relating to specific functions and mission areas may be exercised interactively as an evaluation tool. Within the constraints of available resources, attention also is to be directed towards the development of an analytic (to include a model of the information network at corps and below) means of investigating dynamic information loads and flows within the Command, Control, Communications, and Intelligence architecture (DYNAMIC). This work is an extension of the current methodology used in generating the Technical Interface Concept.

c. The Army's publication of the Army Command and Control Master Plan established goals and objectives for a continuing program of integrated planning in the development of cost-effective Command, Control, Communications, and Intelligence capabilities and placed a new priority on the acquisition of much needed capabilities by 1985. Achievement of these high priority goals requires a sustained effort of review and resource planning, as well as the refinement of methodologies appropriate to this task. Annual updates of requirements and the technical analysis of feasible program and system alternatives is an urgent, high priority task having significant impact on Army research, development, and procurement programs in the command, control, communications, and intelligence system area.

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15. Transition Communication Planning.

a. The US Army Communications Command is the combat developer and user for the Echelons Above Corps and Defense of the Joint Chiefs of Staff/Defense Communications Command has a Special Transportable mission in the Communications Command provided systems and indigenous systems. It is necessary that the operational architecture of these US Army equipment. There are known incompatibilities with current inventory of the US Army Communications Command and TRI-TAC due to their involvement with the US Air Force in a similar situation.

b. MITRE efforts are required to advise and assist the US Army Communications Command Plans Division in developing the Army portion of the Defense Communications System and Special Transportable Missions. The effort will involve the Echelons Above Corps/Echelons Above Corps, specific engineering analysis, associated cost analysis and technical guidance. The capabilities/limitations (Contingency Plans and Operational Plans) concepts, doctrine, studies, plus associated switching system, systems will efficiently and economically interoperate. This will insure that the various equipments to be used in these

c. In FY 1982, MITRE will provide engineering expertise to advise, guide the transition of TRI-TAC developed equipment and for Special Transportable configuration (in support of the Defense Communications System/Major Army Command Contingency/operational plans). Requirements for this work are expected to continue at least through FY 1984.

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Section 6 (Contd)

FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
(\$ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

The following three areas will commence during this time frame:

- (1) Study and project the trends of the Department of Defense and Army and Commercial Communications networks and systems into the post-1985 time frame to determine the overall technical capabilities needed.
 - (2) Analyze the impact of domestic and foreign policies, the Joint Chiefs of Staff and Army objectives, industry research and development, and commercial network developments.
- (1) Determine those key technical features of the US Army Communications Command assigned Communications-Electronics missions (e.g., Echelons Above Corps, Army Base Communications, Strategic Army Communications System, etc.) that are subject to being impacted adversely or favorably by external drivers.

16. US Army Communications Command Command and Control Technical Support.

- a. The US Army Communications Command World-Wide Military Command and Control System Management Office has the responsibility for the World-Wide Military Command and Control System Selected Architecture as well as a support mission for other US Army Communications Command Command, Control, and Communications projects. These programs include the Joint Crisis Management Capability, Jam-Resistant Secure Communications Upgrades, US European Communications, US Nuclear Forces Command, Control, and Communications Upgrades, Army Command and Control Master Plan, and other anticipated Control System Management Office programs during the current and past fiscal years and the requirement for MITRE support will continue for the future years. These programs are of a high-level priority within the Department of Defense and program schedule constraints make it highly advisable to continue to employ the services of MITRE.

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Section b (Cont'd)

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FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT
(\$ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (Continued)

b. During the past fiscal year MITRE provided support in the engineering design and analysis of the Tactical Nuclear Forces Command, Control, and Communications communication facilities and in the development of requirement and specifications for the Joint Crisis Management Capability and the Jam-Resistant Secure Communications terminals. In addition, MITRE participated in the Tactical Nuclear Forces Command, Control, and Communications planning efforts identifying the system analysis and technical criteria to be used in the selection and evaluation of the Tactical Nuclear Forces Command, Control, and Communications communication upgrades.

c. During FY 1982 and FY 1983, MITRE will continue to assist the US Army Communications Command World-Wide Military Command and Control System Management Office in their technical planning, engineering and direction efforts in support of US Army Command, Control, and Communications programs. The effort will involve the development of management and implementation plans, the preparation of technical analysis and associated cost estimates, specific engineering analysis, and technical guidance on the current and future command, control, and communications programs supported by the US Army Communications Command World-Wide Military Command and Control System Management Office. Specifically, emphasis will be on efforts in support of the Joint Crisis Management Capability, the Jam-Resistant Secure Communications, the Tactical Nuclear Forces Command, Control, and Communications, the Army Command and Control Master Plan, and European Theatre Command Centers.

17. Army Base Information Transfer System/Walter Reed Medical Center Information Transfer System.

a. MITRE efforts are required for continuation of support to the Army Base Information Transfer System/Walter Reed Medical Center Information Transfer System. In prior years, MITRE developed and implemented a patient registration system upgrade; monitored design of production engineering Bus Interface units; provided testing, evaluation, and certification of production engineering Bus Interface units; implemented technical control system; and assisted in design of high resolution for fluoroscopy video tests.

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Section 6 (Contd)

FEDERAL CONTRACT RESEARCH CENTERS

SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT

(\$ in Thousands)

FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT

MITRE CORPORATION (continued)

b. In FY 1981, MITRE is providing continued System Engineering support to Walter Reed Medical Center, the Army Medical Department, and the Tri-Service Medical Information System in the implementation and interfacing of communications systems. The communications systems to support the medical Automatic Data Processing systems within the Army Medical Department will be an integrated multi-mode communications systems typified by the Walter Reed Information Transfer System installed and tested at the Walter Reed Medical Center under the Army Base Information Transfer System/Walter Reed Information Transfer System project over the last two years. Work to be performed by MITRE during 1981 is to (1) provide continuing technical support in interfacing the major Hospital Information System onto the Walter Reed Information Transfer System cable at the Walter Reed Medical Center; (2) provide the design, installation, testing, and monitoring of a technical control/performance monitoring system at Brooke Army Medical Center, Fort Sam Houston, Texas; (3) continue to provide support in interfacing Automatic Data Processing medical systems such as the patient appointment system, record tracking system, and the clinical laboratory system onto the Walter Reed Information Transfer System cable at the Walter Reed Medical Center; (4) continue to provide technical support in interfacing Automatic Data Processing medical support systems such as the inpatient accounting system, physiological monitoring system, clinical laboratory system, record tracking system, patient appointment system with the Hospital Information System at Walter Reed Medical Center; (5) continue to provide support in designing, implementing, and/or upgrading integrated communication systems at Army Medical Treatment Facilities to support the Tri-Service Medical Information System, local Automatic Data Processing, and other communications requirements; (6) provide support in the operational use of the production Bus Interface Units; (7) continue to assist the Tri-Service Medical Information System-Army in implementing and interfacing the Tri-Service Medical Information Systems and communication requirements into Army Medical Treatment Facilities; (8) continue to specify changes to and provide technical assistance in upgrading communications in Army Medical Treatment Facilities to take advantages of new technology in the Bus Interface Units and broadband multimode communication techniques.

c. During FY 1982-1983, MITRE will develop request for procurement documents to enhance current Bus Interface Units design; provide evaluation and design and implementation of the Tri-Service Medical Information System Automatic Data Processing system; develop Bus Interface Units software; assist in the design and installation of broadband communication systems; and, assist in the interface of multi-mode communication systems.

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Section 6 (Contd)

FEDERAL CONTRACT RESEARCH CENTERS

| <u>FEDERAL CONTRACT RESEARCH CENTER/APPROPRIATION/PROGRAM ELEMENT</u> | <u>SUMMARY BY APPROPRIATION AND PROGRAM ELEMENT</u> | | |
|---|---|-----------------------------|-----------------------------|
| | <u>FY 1980 ACTUAL</u> | <u>FY 1981 ESTIMATE</u> | <u>FY 1982 ESTIMATE</u> |
| <u>TOTAL PROGRAM SUMMARY BY APPROPRIATION</u> | | | |
| Research, Development, Test and Evaluation, Army | 20,794 | 22,922 | 26,750 |
| Operations and Maintenance, Army | <u>2,800</u> | <u>3,192</u> | <u>3,814</u> |
| Total Federal Contract Research Center Requirement | 23,594 | 26,114 | 30,564 |
| Subcontract effort excluded from this amount | 11,146 | 15,459 | 16,619 |
| | | | 17,600 |

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**DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY
MAJOR IMPROVEMENTS TO AND CONSTRUCTION OF GOVERNMENT-OWNED
TEST FACILITIES**

PART I. UTILIZATION OF SECTION 235, TITLE 10 AUTHORITY

Specialized R&D facilities and/or equipment determined to be necessary for the performance of a contract for a military department for research and development may be constructed by or furnished by the contractor and funded from appropriations available for research, development, test and evaluation. The Congress enacted this legislation, now 10 U.S.C. 2353, in 1956. This policy is executed through DOD Directive 4275.5. Under this policy, the Secretaries of the Military Departments or their designees, and the Directors of Defense Agencies may approve facilities projects up to \$3,000,000; the Under Secretary of Defense Research and Engineering approves projects exceeding \$3,000,000. The Congress is notified in advance of starting any project involving construction, regardless of the dollar amount. The table below provides a summary listing of all such projects accomplished in FY 1980 and planned in FY 1981, FY 1982, and FY 1983.

| Project Number | Contractor | Location | Total Obligational Authority | | |
|---------------------------|------------|----------|------------------------------|---------|---------|
| | | | FY 1980 | FY 1981 | FY 1982 |
| <u>Facility/Equipment</u> | | | (Thousands of Dollars) | | |

Project 3: Assessment Issues or Underway

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Projects Planned or Projected

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MAJOR IMPROVEMENTS TO AND CONSTRUCTION OF GOVERNMENT-OWNED
FACILITIES FUNDED BY RDTE, ARMY APPROPRIATIONPART 2. UTILIZATION OF RDTE APPROPRIATION FOR FACILITIES AT GOVERNMENT-OWNED/GOVERNMENT-OPERATED INSTALLATIONS

The RDTE appropriation may finance the development, design, purchase, and installation (including directly related foundations, shielding, environmental control, weather protection, structural adjustments, utilities and access) of equipment or instrumentation required for research, development, test and evaluation activities. The table below provides a summary listing of all such projects for the installation of equipment, where the cost of installation is \$100,000 or more, accomplished in FY 1981, FY 1982, and FY 1983.

| Facility/Equipment | RDTE Project Number | Location | Total Obligational Authority (Thousands of Dollars) | | | | |
|--|---------------------|---|--|---------|---------|---------|--|
| | | | FY 1980 | FY 1981 | FY 1982 | FY 1983 | |
| <u>SECTION I</u> | | | | | | | |
| Projects Accomplished or Underway | | | | | | | |
| Anechoic Chamber for Microwave Research | 612771.A805 | Walter Reed Army Institute of Research, Building 40 WRAMC, Washington, DC | | 150 | - | - | |
| Building alterations to accommodate laser research | 623710.DK70 | Bldgs 317 and 357, Night Vision & Electro-Optics Laboratory, Fort Belvoir, Virginia | | 432 | - | - | |

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UNCLASSIFIED**Section 7 (Contd)****MAJOR IMPROVEMENTS TO AND CONSTRUCTION OF GOVERNMENT-OWNED
FACILITIES FUNDED BY RDTE, ARMY APPROPRIATION**

| Facility/Equipment | RDTE Project Number | Location | Total Obligational Authority (Thous. mils of Dollars) | | | | |
|--|----------------------------|---|--|---------|---------|--|--|
| | | | FY 1980 | FY 1981 | FY 1982 | | |
| <u>SECTION II</u> | | | | | | | |
| Projects Planned or Projected | | | | | | | |
| Computer Room Air Conditioning | 611102.B52C 612707.A855 | US Army Engineer Topographic Laboratory, Building 2592 Fort Belvoir, Virginia | - | 2'0 | - | | |
| Installation of 29 Built-in Sterilizers (Replacement) | 665801.MM32 | USA Medical Institute of Infectious Diseases, Building 1425 Fort Detrick, Maryland | - | 516 | 516 | | |

PART 3. UTILIZATION OF RDTE APPROPRIATION FOR MINOR CONSTRUCTION

For in-house installations, construction projects in support of R&D for \$100,000 or less are funded from RDTE appropriations. Such expenditures are authorized by 10 USC 2674 and the applicable provisions of the current DOD Appropriations Act. Under this procedure, project approval at this level is authorized by the Major Command concerned, or delegated to R&D installation commanders as appropriate. The table below provides a summary total of such minor construction accomplished in FY 1980, and the estimated amounts planned for FY 1981, FY 1982, and FY 1983. All minor construction must result in a complete and usable facility. In no event is two or more minor construction projects or minor and major construction projects to be contrived to form a usable facility.

SUMMARY OF MINOR CONSTRUCTION FUNDED BY RDTE, ARMY

| | FY 1980 | FY 1981 | FY 1982 | FY 1983 |
|--|---------|---------|---------|---------|
| | 3,136 | 3,725 | 2,977 | 2,674 |

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MAJOR IMPROVEMENTS TO AND CONSTRUCTION OF GOVERNMENT-OWNED
FACILITIES FUNDED BY R&T, ARMY APPROPRIATION

R&T, INSTALLATION PROJECT FACT SHEET
(Supporting Projects Over \$400,000)

I. Facility/Equipment: Alter Buildings 317 and 357 to include partitions, recessed lighting, suspended ceiling, provisions for air, gas, and chemical piping, repair walls, install workbenches, sinks, fumehoods and exhausts, repair floors. Install warning lights and electrical safety devices.

II. R&D Program Element: 6.37.10.A

III. R&D Project Number: DK70

IV. Location: Night Vision and Electro-Optics Laboratory, Fort Belvoir, Virginia

V. R&D Funds Programmed: FY 1980 \$412,000

VI. Other Funds: None

VII. Relationship to R&D Program Element: This construction alterations, equipment installation, maintenance and repair are required to provide modern laboratory facilities for research, development, experimentation, technical data recording, experimental fabrication and testing for various types of laser devices to be utilized for distance ranging, fire control and target designation/signature.

VIII. Rationale for Funding Effort in R&D: Less than \$75,000 of this effort is for construction, the remainder is for installation of equipment in place. This facility is used solely for R&D missions and is fully supported and operated with R&D funds.

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MAJOR IMPROVEMENTS TO AND CONSTRUCTION OF GOVERNMENT-OWNED
FACILITIES FUNDED BY R&D, ARMY APPROPRIATION

**R&D: INSTALLATION PROJECT FACT SHEET
(Supporting Projects Over \$400,000)**

- I. Facility/Equipment: Replace 29 built-in sterilizers.
- II. R&D Program Element: 6.5R.01.A
- III. R&D Project Number: MM12
- IV. Location: US Army Medical Research Institute of Infectious Diseases, Building 1425, Fort Detrick, Maryland
- V. R&D Funds Programmed: \$2,064,000 for four-year period beginning FY 1981
- VI. Other Funds: None
- VII. Relationship to R&D Program Element: This program element is used to fund activities which benefit all R&D projects supported in R&D laboratories.
- VIII. Rationale for Funding Effort in R&D: This facility and equipment is used solely for R&D missions.

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DEPARTMENT OF THE ARMY
RESEARCH, DEVELOPMENT, TEST AND EVALUATION, ARMY
PROJECT DATA FOR CONSTRUCTION AT GOVERNMENT-OWNED
FACILITIES FUNDED BY RDTE, ARMY APPROPRIATION

Section 8

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